This book aims to explore the important consciousness-raising function of learners' native language (L1) in learning foreign language (L2) grammar. The literature review contains a detailed elaboration on the following topics:

- theoretical and empirical perspectives on consciousness in second language acquisition (SLA),
- grammar as a component of instructed L2 acquisition,
- consciousness-raising as an option in the teaching of L2 grammar,
- the position of learners' L1 in L2 learning and teaching,
- methodological concerns in researching consciousness-related concepts in SLA.

The mixed-methods study reported in this work addressed the role of the L1 (Polish) in learning L2 (English) grammatical structures. To this end, both the learning-as-process and learning-as-product orientations were embraced in the investigation, resulting in a comprehensive account of the L1 as a consciousness-raising tool in the instructed acquisition of L2 grammar.

Integrating theoretical, pedagogical, as well as empirical perspectives on consciousness, grammar, and the L1 in L2 learning and teaching, the book may be of interest to a wide audience, especially L2 teachers, philology students, and SLA and ELT researchers.

Aleksandra Wach works as an assistant professor at the Faculty of English, Adam Mickiewicz University in Poznań. She conducts EFL didactics courses for both pre-service and in-service teachers, and teaches English as a foreign language at university level. Her research interests have focused on various areas in teacher education and L2 learning and teaching, while grammar instruction has always occupied a prominent place among them. The role of the L1 in acquiring the L2 is the most recent theme undertaken in her research.

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Aleksandra Wach
The L1 as a consciousness-raising tool in learning L2 grammar

ALEKSANDRA WACH

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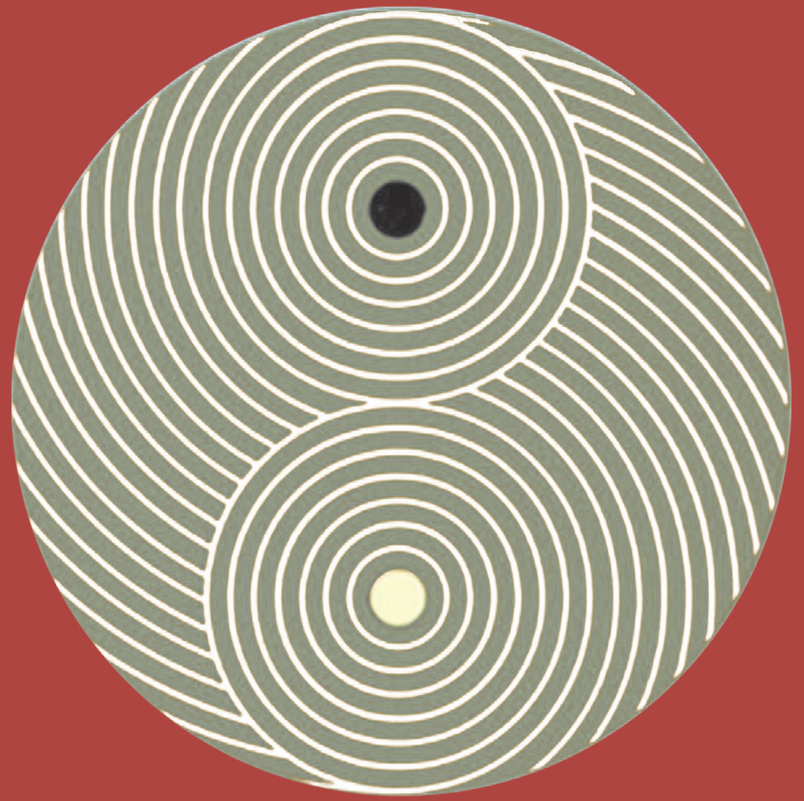

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The L1 as a consciousness-raising tool in learning L2 grammar

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Aleksandra Wach

The L1 as a consciousness-raising tool in learning L2 grammar

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The main aim of the book is to investigate the facilitative role of learners' native language (L1) in raising their consciousness of foreign language (L2) grammatical structures. The literature review focuses on selected second language acquisition theories which explain the role of the different conceptualizations of consciousness in L2 learning, on the position of grammar in contemporary L2 pedagogy, with special regard to grammatical consciousness-raising, and on theoretical and empirical perspectives on the functions of learners' L1 in L2 learning and teaching. The empirical part of the book presents the methodology and results of a mixed-methods study conducted on low-proficiency adult learners of L2 English with the aim of exploring the role of their L1 (Polish) in promoting the noticing, understanding, and explicit knowledge of L2 grammatical structures. The results revealed a number of significant functions of the L1 in enhancing the participants' consciousness of the targeted structures, evidenced in the use of mental strategies (i.e. translation, cross-linguistic comparisons, making inferences, metalinguistic reasoning, etc.), in the results of tests, and in opinions expressed in debriefing interviews.

KEY WORDS: consciousness; consciousness-raising; grammar; English as a foreign language; EFL; native language; L1; L2; think-aloud protocol.

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Introduction

This book aims to explore the role of learners' native language (henceforth, the L1) in raising their consciousness in the process of learning foreign language (henceforth, the L2) grammar. Accordingly, it illuminates the connections between three topics, all of which are central to the contemporary research on L2 learning and teaching: consciousness in second language acquisition (SLA), learning and teaching L2 grammar, and the role of learners' L1 in instructed L2 learning. The combination of these concepts seems to be well justified in learner-centered pedagogy, in which a focus is placed on the capacities, abilities, and needs of the learner. Moreover, the relevance of the concepts central in this work is particularly strong in relation to foreign language, as opposed to second language, pedagogical settings, where learners often share an L1. In such contexts, explicit teaching procedures, aimed at developing explicit knowledge representations in learners, are expected to compensate for a shortage of extensive exposure to the L2 which could effectively stimulate spontaneous, implicit learning processes. These largely commonsensical justifications will be explored in a detailed literature review of essential issues related to these three central topics, presented in the initial part of the book, while in the final chapters, the results of the empirical investigation carried out for the purpose of this work will be presented and discussed.

This book, as will be evident in the following chapters, is guided by a belief that consciousness plays a significant role in the process of instructed L2 learning. Specifically, it is about learning L2 grammar, which is considered to be a highly relevant and stimulating research topic. Grammar is the basic foundation that gives every language its structure. It is a framework upon which sentences are created and meanings are conveyed. It is an object of analysis, an aid to learning, and, above all, a means to achieve effective communication, in terms of both language reception and production (Nassaji 2017; Nassaji and Fotos 2011; Pawlak 2006; Mystkowska-Wiertelak and Pawlak 2012; Swan 2005). While the vital role of grammar is unquestioned in contemporary L2 teaching, the specific kinds of grammar instruction that are most conducive to its successful acquisition continue to stir controversies among researchers, which makes the topic of grammar learning and teaching even more cap-

tivating and worth scrutinizing. The links between learning L2 grammar and learners' consciousness are of particular interest within the present investigation. The process of learning grammar by adults, more than any other language area, requires analysis and understanding, which are notions usually associated with consciousness. Therefore, consciousness is a relevant concept underlying theoretical, empirical, and pedagogical approaches in the instructed learning of L2 grammar. Rutherford's (1987, 1988a, 1988b) claim that raising learners' consciousness about the L2 grammatical system should be a principal component of L2 instruction constitutes one of the rationales of this work.

As acknowledged by researchers (N. Ellis 2011; Sharwood Smith 2014; Truscott 2015), consciousness continues to be a crucial topic underlying numerous debates about the effectiveness of various instructional procedures. In fact, most L2 teaching approaches and methods are differentiated on the basis of the role they ascribe to conscious or unconscious processes in learning and in learners' cognition. The importance of consciousness in SLA has been acknowledged by a number of theories which have given rise to a conviction that a vast portion of learning different aspects of the L2 requires at least some level of conscious processing. Consciousness and other related constructs have been studied in relation to L2 learning, and there has been a growing volume of research on the role of conscious processing in learning various aspects of the L2, including its grammar (e.g., Calderón's 2013; Godfroid and Uggen 2013; Leow et al. 2013; Loewen and Inceoglu 2016).

Links can be traced between the discussions about consciousness in L2 learning and the current revived interest in the role of learners' L1 in L2 learning and teaching. One of such links highlights the function of the L1 in stimulating explicit, conscious learning mechanisms in instructed learning of the L2 grammatical system. In fact, the recently increased appreciation of the teaching of grammar as an element of L2 instruction has been among the stimuli for a re-appreciation of the role of the L1 in the process. Certain parallels can be traced between the recognition of the position of the L1 and of form-focused instruction, especially of the explicit type, in L2 education. Both seem to be absolutely central to L2 development (in many past approaches, L2 teaching was directly associated with the teaching of L2 grammar), but have enjoyed various levels of popularity within different theoretical frameworks, and both were denounced in the strong version of the communicative approach as interfering with nat-

ural acquisition of L2 communicative competence. Nowadays, however, the need for form-focused instruction in order to enhance instructed L2 learning is not questioned, and various approaches toward grammar teaching, implicit and explicit, focus on forms and focus on form, input-based and output-oriented, are assumed to be effective. The effectiveness of explicit instruction has been particularly strongly confirmed by research (this is evident in the meta-analyses by, e.g., Goo et al. 2015; Norris and Ortega 2000; Spada and Tomita 2010). Explicit instruction directly focuses learners' attention on target features, making the L2 grammatical system an object of deliberate study, often through the formulation of rules and the use of metalinguistic terminology. Within the explicit approach toward grammar teaching, consciousness-raising (C-R) instruction can be differentiated as a specific pedagogical option whose aim, as the term suggests, is to raise learners' consciousness of the target L2 grammatical features through guiding them to a discovery of the underlying patterns of structures. Various specific definitions of grammatical C-R can be found in the literature, from a broader C-R perspective embracing a range of specific possibilities with different levels of explicitness and elaboration (Sharwood Smith 1981), through a selection of C-R options aimed at "grammaticizing" learning and teaching (Rutherford 1987), to C-R realized as C-R tasks, in which learners communicate about L2 grammar (Fotos and R. Ellis 1991; R. Ellis 2003).

Based on the considerations outlined above, it seems plausible that the L1 can function as a tool for raising learners' consciousness about L2 grammatical forms. There have been empirical accounts of beneficial effects of the L1 on L2 grammar learning outcomes (e.g., Corcoll 2013; De la Fuente 2015; Piechurska-Kuciel 2005; Spada, Lightbown and J. White 2005). In this respect, the study conducted for the purpose of this work contributes to the discussion of the functions of learners' L1 in learning another language. However, the study offers a more specific perspective, focusing specifically on the role of the L1 in raising learners' consciousness within instructed grammar learning activities. It thus addresses the L1, consciousness, and L2 grammar learning as the main research variables; moreover, the study assumes both a process and a product perspective on learning, with a special focus on the former. Thus, while contributing to the growing body of research on the L1 in L2 instruction in general, the study concentrates in particular on a close investigation of learners' conscious processing in learning L2 grammar.

Besides containing a presentation of the author's study findings, the book also provides a comprehensive review of theoretical issues on consciousness in SLA, on instructed learning and teaching L2 grammar with a special focus on consciousness-raising instruction, and on the functions of the L1 in learning L2 grammar, so it may be of interest to a wide audience. Most generally, it is intended for anyone who is interested in the role of consciousness as a cross-linguistic interface in L2 learning and in how it informs L2 pedagogy. More specifically, the main target group is students at language faculties who want to broaden their knowledge about theoretical and research-oriented perspectives on the explicit learning of L2 grammar and the role the L1 plays in it. Secondly, L2 teachers working at different levels of schools may find this book instructive. The theoretical insights and their pedagogical implications can be a useful basis for their reflections about explicit didactic procedures. Finally, because the book explores recent developments in key areas of instructed L2 learning, it is anticipated that it will also have relevance for SLA researchers as an inspiration for further empirical investigations on the topics scrutinized here.

The present work consists of seven chapters, which can be divided into two main parts. The four initial chapters constitute the literature review, while the remaining three focus on the empirical research. The aim of each of the three initial chapters is to provide the relevant theoretical foundation for the study that was conducted for the purpose of this work. The theoretical positions and the discussed conceptions constitute a basis for the formulation of the objectives of the study, the operationalization of its variables and key concepts, as well as for the interpretation and discussion of the findings elicited in the course of the study. It should be highlighted that the final sections of Chapters 1-3 contain reviews of previous research on the relevant topics. These reviews are accompanied by tables summarizing the reviewed studies.

Chapter 1 aims to discuss the concept of consciousness in the context of SLA; therefore, it starts with a presentation of definitions of consciousness in non-SLA and SLA fields, followed by a review of issues underlying consciousness in L2 learning: its links with working memory, the concepts of explicit and implicit learning and knowledge, and of learning as a process and as a product. This introduction of relevant notions is intended to lay a foundation for the presentation of selected theoretical frameworks which attribute a role to consciousness in L2 learning,

though each seeing it through completely different lenses. The theoretical positions are divided into: those focusing on input and input processing, those focusing on input and intake processing, those focusing on output processing, and those focusing on all stages of learning. Chapter 1 closes with a presentation of selected study findings on the role of consciousness, attention, noticing, and awareness in learning the L2.

In Chapter 2, issues related to instructed learning of L2 grammar are discussed, with a special focus on the consciousness-raising orientation in L2 pedagogy. Consequently, the position of grammar as a component of L2 teaching is presented in the initial section. The definition of instructed learning of L2 grammar, as part of instructed second language acquisition (ISLA), is included here as well. It seems important to briefly mention it, because ISLA provides the context of the study reported in this work, and it has recently been differentiated from general SLA and extensively discussed by SLA specialists. Moreover, the links between certain individual factors in learning L2 grammar are also discussed in the first section. In the following section of Chapter 2, the main approaches toward form-focused instruction are reviewed: zero grammar, explicit and implicit, focus on forms and focus on form. This will be followed by an elaboration of grammatical consciousness-raising (C-R) as an instructional option: its definitions, typical features, and examples of practice. The conception of C-R instruction assumed in this work is rather broad, and it is based on the main features of C-R distinguished by researchers (e.g. Rutherford 1987, 1988; Sharwood Smith 1981, 1985; R. Ellis 2002, 2016) and the present author's understanding of the concept. Therefore, the presentation of specific realizations of C-R are grouped according to its typical characteristics and includes: input-based C-R (various types of input enhancement, especially more explicit ones, and Processing Instruction as a specific kind of C-R congruent with its basic principles), C-R based on guided problem solving, and task-based C-R. Chapter 2 ends with a review of selected previous research on the effectiveness of grammatical C-R in instructed learning of grammar.

Chapter 3 is devoted to the place of the L1 in learning and teaching L2 grammar, discussing a broad selection of issues related to this topic. It starts with a more general outline of basic theoretical notions and conceptions, such as cross-linguistic influence and cognitive premises underlying L1 in L2 learning, which form a foundation of its role in SLA processes. Next, its place in L2 learning is presented within the perspectives of four

theories: the Contrastive Analysis Hypothesis, the Interlanguage Hypothesis, the Universal Grammar Theory, and the Multicompetence Theory. Then the focus is shifted to more practical deliberations on L1 use in L2 pedagogy, including a delineation of its position as supplementing rather than replacing L2-medium instruction, a review of arguments for and against its application, and a number of practical teaching ideas for L1-based didactic techniques. The chapter ends with a review of studies on the L1 in L2 learning and teaching: studies on the amount and purposes of L1 presence in L2 instruction, on learners' and teachers' opinions and attitudes toward it, and on the effects of its use on learning grammar.

Chapter 4 presents an array of issues connected with the methodology of conducting research on consciousness in L2 learning and teaching, in this way serving as a 'buffer' between the literature-based and the empirical parts of the present work. Featuring a literature review of methodological concerns in consciousness-oriented research, it introduces issues of direct relevance to the description of the study conducted for the present work. A vast selection of methodological options in research design are discussed in this chapter, not all of which were employed in the design and conduct of this research. Its aim is, however, to present a broad literature-based perspective on various possibilities, at the same time laying a foundation for the description of study procedures reported in the following chapters. To this end, a whole section in Chapter 4 is devoted to methodological issues in conducting think-aloud (TA) investigations, which was the most important research method in the study.

Chapters 5-7, as stated above, are empirical in scope and contain an account of the study conducted to address the aims of this work, which was to investigate the role of the L1 in raising learners' consciousness in instructed learning of L2 grammatical structures. Chapter 5 contains a detailed description of the research methodology used, in Chapter 6 the findings of the study are reported, and Chapter 7 is devoted to the discussion of the results, the study limitations, and suggestions for further research. As explained in these chapters, thirty beginner adult learners of L2 English constituted the research sample divided into two groups: the bilingual group, which was exposed to L2 input with L1 translations, and the monolingual group, which worked on L2-only input. A convergent parallel mixed methods research design was applied, making use of a number of research methods which yielded both qualitative and quantitative data and captured both the learning-as-process and the learning-as-

product perspectives. Think-aloud protocols served as the most important research tool, and the data that they generated illuminated the ongoing mental processing, operationalized as a number of processing strategies. The specification of the types of these strategies, their frequency counts, and their qualitative analysis gave an important insight into the conscious processes that took place in learners' minds as they were processing the input and performing the grammar tasks. These data also provided relevant information about the role of the L1 in the learning tasks. The scores obtained on the tasks, which were other data elicitation tools, provided evidence of the participants' mental representations, that is, explicit knowledge, formed as a result of the processing. A grammatical sensitivity test, as a measure of an individual factors assumed to influence conscious cognitive processes that were stimulated by the instructional tasks, was another research tool. Debriefing interviews, in which the participants expressed their opinions about the usefulness of the L1 in learning L2 grammar, constituted the final data elicitation tool used in the study.

The account of the research design, its findings and their discussion is followed by a brief section called Final conclusions, in which the main findings and the core issues from the literature review are summarized. Some didactic implications derived from the study findings are also included there. The book ends with a list of references and seven appendices which contain the data collection instruments and tasks, and the tables (Tables 1A-10A) with the frequency counts and descriptive statistics for the mental processing strategies identified in the think-aloud protocols. A brief summary in Polish is the final element in the book.

In order to avoid confusion, two terminological deliberations are needed here. One of them concerns the 'acquisition' and 'learning' distinction, introduced by Krashen (1981). In the present work, this distinction will not be consistently maintained, and these two terms will be used interchangeably, unless direct references are made to Krashen's (1981, 1983, 1985) theory. Another terminological matter is related to the use of the abbreviation 'L1,' one of most central terms used throughout the book. It should be explained that while it is meant to denote learners' first language, in the recent literature, confusion and even a certain level of controversy has emerged over the use of this term. G. Cook (2010: xxi-xxii) points out the inadequacies of the terms 'first language (L1),' 'native language' and 'mother tongue.' For one thing, what is usually referred to as 'first language' may not be the first language that learners acquired.

Secondly, 'native' has numerous connotations and thus is 'muddled and imprecise.' Furthermore, 'mother tongue' is not always one's mother's language, which renders this term often inaccurate. Although G. Cook (2010) chooses to use the term 'own language' as (in his opinion) the most neutral and accurate one, in the present work, the term 'first language,' abbreviated to L1, will be used to denote learners' own language. This decision is motivated by the generally widespread application of this term and its common recognizability, despite a certain level of vagueness that it entails. Similarly, the target language will be referred to as 'L2,' regardless of whether a foreign or a second language is concerned. While in the study description the L2 will always mean English as a foreign language, in the literature review both second and foreign language settings are mentioned, always with the use of the L2 abbreviation. It is interesting to note that G. Cook (2010: xxii) opted for the term 'new language,' as simpler and more straightforward, in relation to the language being learned.

Regardless of these terminological debates, contemporary SLA literature increasingly highlights the fundamental place of the L1 in L2 learning. Its potential to raise learners' consciousness about L2 grammatical structures is just one of the functions of the L1 that have been discussed in current publications. This intriguing research theme will be elaborated upon in the present work.

Chapter 1

Consciousness in Second Language Acquisition: A theoretical perspective

1.0. Introduction

Chapter 1 of the present work aims to discuss issues related to the concept of consciousness in the context of second language acquisition (SLA), particularly in relation to learning the grammatical system of a foreign language (L2). The chapter consists of four main sections. In the initial one (1.1.), the concept of consciousness will be explained through a review of its defining features in non-SLA and SLA contexts. Section 1.2. will focus on important issues concerning consciousness in learning an L2, covering the nature of explicit and implicit learning and knowledge, the relation between consciousness and working memory, and an explanation of process and product orientations in L2 learning. Section 1.3. will be devoted to a presentation of selected theoretical perspectives (theories, frameworks and models) on SLA in which consciousness, awareness, and explicit or implicit learning and knowledge (or their lack) are central concepts. The final section (1.4.) will present an overview of selected previous research on consciousness in the SLA field.

1.1. The concept of consciousness

In order to discuss the role of consciousness in the field of SLA, first, the term 'consciousness' will be defined. Defining features of consciousness recurring in the definitions of the concept in the fields of cognitive psychology, neuroscience and philosophy will be briefly outlined as an introduction to a definition of consciousness and other related terms, namely 'attention,' 'noticing' and 'awareness,' within SLA. Apart from offering explanations of these terms, this section will start with delineating the challenges involved in defining consciousness.

1.1.1. Difficulties with defining consciousness

'Consciousness' is a term that is central to the subject matter of the present chapter and to the whole work, hence its definition opens the discussion of its relevance for SLA. However, what makes the task of defining the term 'consciousness' particularly difficult is the general lack of agreement among researchers in different areas, including the field of SLA, upon the exact meaning of terms such as 'conscious,' 'unconscious' or 'subconscious.' As noted by Velmans (2009), there have been attempts to define and describe consciousness in a variety of fields, such as philosophy, literature, psychology, adding to the complexity of various ways of understanding this term. As he concludes, although there seems to be some degree of knowledge or feeling in every person about what it means to be conscious or to have consciousness, "no universally agreed 'core meaning' [of the term] exists" (Velmans 2009: 139). Schmidt (1994: 13) contends that indeed, the wide array of possible meanings of the term and their interpretations contribute to problems when discussing the role of consciousness in L2 learning and teaching. Van Lier (1998: 130) seems to agree with this, admitting that the notion of consciousness is truly multidimensional in the area of language learning, and acknowledging that "it is possible to identify many layers, levels, and facets of consciousness."

Thus, the problems with defining the concept of consciousness add to its various interpretations and ways of operationalizing it. As a result, VanPatten (1994: 27) stated, "[n]o concept raises more hackles in second language acquisition (SLA) circles than 'consciousness'." McLaughlin (1990a), highlighting the ambiguity of the term 'consciousness,' even postulates avoiding using the terms 'conscious' and 'unconscious' in the field of SLA research. In his opinion, 'consciousness' is a too general term covering a range of specific terms, such as noticing, learning with awareness, intention to learn and to use strategies, explicit knowledge, focal attention, and many others, which make discussions about SLA issues much more precise. In this respect, he agrees with Odlin (1986: 138), who is in favor of discarding "the slippery notion of 'consciousness'" in discussing L2 learning processes.

A large proportion of the difficulty with defining consciousness is related to terminological inconsistencies. This has been noted by several researchers. For example, VanPatten (1994: 27) states: "[t]he 'problem of consciousness' (or better yet, the 'debate' on consciousness) in SLA is in

part a problem of terminology – and a large part of the problem in terminology lies in the confusion between process, product, context and focus or purpose." In fact, the term 'consciousness' is often used interchangeably with a number of related terms due to the similarities and overlapping among the constructs these terms refer to. Leow (2015a: 160) observes that the terms 'attention,' 'noticing,' and 'processing' are often used interchangeably, as if they referred to the same concept.[1] Komorowska (2014: 8), discussing the terminological chaos and inconsistencies found in the literature, indicates the resulting use of the same broader terms in relation to different concepts:

> The concept of *language awareness* (…) is sometimes used to describe both focus on form and focus on forms, both the teacher's and the learner's perspective, both explicit and implicit learning, sometimes even both intuition and knowledge – thus nowadays it refers to literally anything from the early start through power and gender to intercultural competence. The term is often used synonymously with *consciousness*.

Komorowska (2014: 6) further explains that the interchangeable use of the terms 'awareness' and 'consciousness' in English is also reflected in other languages (including Polish).

Velmans (2009: 142) goes on to admit that although "[in] common usage, the term 'consciousness' is often synonymous with 'awareness,' 'conscious awareness,' and 'experience,' and although this interchangeable use of these terms generally makes sense, more precise distinctions are necessary within specific domains of study." These useful distinctions lead to differences in the conceptions underlying various aspects of L2 learning and teaching which will be discussed further in this work.

1.1.2. The definition of consciousness in non-SLA fields

A selection of the main features of the concept of consciousness found in its definitions formulated by specialists in non-SLA fields will be outlined in this subsection. These insights will come from cognitive psychology,

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[1] Although some researchers in fact do advocate using the terms 'consciousness' and 'awareness' interchangeably (e.g. Możejko 2014; Svalberg 2007, 2012), or abandoning the term 'consciousness' in favor of the term 'awareness' (e.g. Carr and Curran 1994), other researchers still do not seem to assume that these terms are synonymous.

philosophy, and neuroscience, which are important fields providing theoretical foundations for SLA.

One recurring feature in the definitions of consciousness is *experience*. Velmans (2009: 141-142) notes that experience of something is at the very core of most definitions of consciousness (as *phenomenal* consciousness) within most theories. He writes, "[a] person, or other entity, is conscious if they experience something; conversely, if a person or entity experiences nothing, they are not conscious." The state of *wakefulness* that is part of many definitions of consciousness is closely connected with this point; however, during sleep one can also have experiences in the form of dreams, and, conversely, it is possible to experience nothing in a wakeful state. Therefore, phenomenal consciousness and wakefulness sometimes need to be distinguished (Velmans 2009: 143). Another relevant point is that *verbal thinking*, exemplified by mental 'phonemic' images or inner speech, is a characteristic feature accompanying conscious states, although it needs to be acknowledged that thought does not reveal the whole content of consciousness (Velmans 2009: 142). *Knowledge* is also frequently associated with consciousness as its important feature, "in the sense that if one is conscious of something one also has knowledge of it;" at the same time, however, much of knowledge can be implicit and thus outside of one's consciousness (Velmans 2009: 144). Similarly, Searle (2002: 2) points out that consciousness in the basic biological sense (e.g., being conscious of some bodily sensations) is not connected with any kind of knowledge.

Subjectivity opens the list of the essential features of consciousness as experience provided by Searle (2002). He explains, "each person's consciousness is private to that person, (…) he is related to his pains, tickles, itches, thoughts and feelings in a way that is quite unlike the way that others are related to those pains, tickles, itches, thoughts and feelings" (Searle 2002: 7). Therefore, an introspective first-person account of one's mental states is an essential, albeit insufficient, way of accessing consciousness (Van Gulick 2018). Other features mentioned by Searle include *unity* of experience (because different sensations occurring at the same time are part of the same conscious experience), *intentionality* (mental states have a certain direction), and *familiarity* (experiences are assimilated into a set of familiar concepts). Moreover, Searle stresses the distinction between *central* and *peripheral* consciousness, which is closely connected to the issue of attentional control (Searle 2002: 12-13).

Truscott (2015: 61-70) summarizes some of the recurring themes in recent theories on consciousness in cognitive psychology and neuroscience. *Activation* is one of them (stressed, e.g., by Baars 1988). Stimuli which lead to a higher level of mental activity are more likely to enter one's consciousness. This concerns both the physical features of stimuli (such as their size, colors, or loudness) and their emotional load. As concluded by Truscott (2015: 62), "it is the strength of a potentially experienced item – the activation that it produces in the mind/brain – that determines whether it reaches consciousness or not." Activation leads to mental representations (a cognitive psychology view) and to assemblies of neurons, denoting enhanced brain activity (a neuroscience view). Another point listed by Truscott (2015) is the connection between consciousness and *short-term memory*; people are conscious of what has entered the short-term memory store. *Attention* is a further recurrent theme in most non-SLA theories of consciousness, and is usually discussed as a pre-condition for consciousness, selecting the sensations which compete for access to consciousness as representations (e.g. Dehaene and Changeux 2005; Jackendoff 1987). Truscott (2015: 67) sees close links between attention and activation, claiming that attention is responsible for active processing of a representation. Another term emerging in the literature is *value*, the emotional subjective response to a stimulus (e.g. Damasio 1999; Jackendoff 1987). Value determines what will enter consciousness. Truscott (2015: 67) observes that people tend to be conscious of what is of value to them, either at a given moment or in more general terms. *Information* is yet another concept particularly frequently discussed in psychological and neuroscientific literature in relation to consciousness. Whether a representation becomes conscious depends largely on its informativeness, and information-sharing is one of the main functions of consciousness (Truscott 2015: 70).

Finally, it needs to be noted that within the area of cognitive psychology, consciousness has often been discussed in relation to such aspects of human information processing as focal attention, working memory, the central executive, or the global workspace (Baars 1988; Velmans 2009). Baars (1988: 18), in his preliminary discussion on the nature of conscious processing within a cognitive perspective, writes that phenomena such as "information processing, representation, adaptation, transformation, storage, retrieval, activation," all of which involve consciousness, are often discussed by theories in cognitive psychology. This way of understanding

consciousness sheds light on the scope of the interest in consciousness by researchers operating within the field of SLA, particularly within the cognitive strand of SLA research.

1.1.3. The definition and scope of consciousness in SLA

Despite the challenges involved in its definition, consciousness is generally agreed to be a crucial concept in the field of SLA. Schmidt's (1990, 1993, 1994, 1995) influential elaborations on the term 'consciousness' have been particularly frequently quoted, and for this reason they will be outlined here. In Schmidt's (1990: 131) understanding, consciousness "ties together such related concepts as attention, short term memory, controlled versus automatic processing, and serial versus parallel processing." In his 1990 publication, in order to facilitate a discussion of different kinds of learning, Schmidt distinguished three kinds of consciousness: consciousness as *awareness*, consciousness as *intention*, and consciousness as *knowledge*.[2] The exploration of *consciousness as awareness* presupposes the existence of various degrees or levels of awareness, three of which are considered to be crucial within the field of L2 learning:

- *Level 1: Perception*. This, in Schmidt's (1990: 132) words, "implies mental organization and the ability to create internal representations of external events." Sternberg (1999: 110) defines perception as "the set of processes by which we recognize, organize, and make sense of the sensations we receive from environmental stimuli." However, perception is not necessarily conscious, as subliminal perception is also possible.
- *Level 2: Noticing (focal awareness)*. Schmidt emphasizes that perception and noticing are not the same phenomenon, because at this level, stimuli are not only perceived, they are also "subjectively experienced" (Schmidt 1990: 132). In some definitions, this stage is available for verbal report, although the learners' inability to

[2] Like Schmidt's elaboration of the term 'consciousness' through a careful consideration of various possible kinds and subdivisions of the notion, van Lier (1998: 131) distinguished four different levels of consciousness pertinent in relation to SLA: (1) *Global consciousness* (referring to whether a person is alive and awake); (2) *Awareness* (including attention and focusing; (3) *Metaconsciousness* (including awareness of mental processes); (4) *Voluntary action (*involving reflective processes and deliberate engagement in an activity).

produce a verbal report cannot be taken as a lack of noticing. Noticing as a concept crucial in SLA will be discussed in more detail further in this section.

- *Level 3: Understanding*. As Schmidt (1990: 132) explains, "[h]aving noticed some aspect of the environment, we can analyze it and compare it to what we have noticed on other occasions." This level thus presupposes higher-order mental processes, such as the ability to analyze the perceived phenomena, to conduct comparisons, to reflect, to solve problems, etc., all of which proceed within learners' consciousness. Metacognitive processes also belong to this level of consciousness. Therefore, while noticing involves relatively surface phenomena and item learning, understanding refers to realizing that there is a pattern, "to a deeper level of abstraction, system learning" (Schmidt 1995: 29). R. Ellis and Mifka-Profozic (2013: 62), commenting on the distinction between consciousness at the level of noticing and consciousness at the level of understanding, conclude that while the former "does not entail a conscious representation of the underlying rule" and, what follows, does not "guarantee learning" of either an explicit or implicit kind, the latter does.[3]

The three levels of consciousness as *awareness* from Schmidt's delineation form a widely accepted definition of the concept of awareness in the field of SLA. In this perspective, 'awareness' is included within a definition of 'consciousness.' This is also the perspective adopted in the present work. However, there are also other perspectives, according to which 'consciousness' is included within the definition of 'awareness,' and a number of perspectives in which the two terms are used interchangeably (e.g. by Truscott and Sharwood Smith 2011 and Truscott 2015), due to the

[3] R. Ellis (2016: 128-129) notes certain parallels between Schmidt's conceptualizations of some of these kinds of consciousness and the ones offered by Velmans (1991), who distinguished three senses of the concept: (1) consciousness of the process itself, (2) consciousness of the result arising from the processing of language, and (3) consciousness entering into or casually influencing the process. It can be concluded that consciousness of the process corresponds to the subjective experience at the level of noticing in Schmidt's (1990) explanation, while consciousness of the result of language processing, which embraces the emerging awareness of rules and patterns, parallels Schmidt's level of understanding.

largely overlapping nature of the conceptions that they pertain to, and a considerable ambiguity of both terms in the field of cognitive psychology and SLA. These points were already reviewed in section 1.1.1., devoted to the difficulty in a providing clear and straightforward definitions of the terms 'consciousness' and 'awareness.' In fact, several researchers, among them James (1996: 139), insist that a distinction should be made between the terms 'consciousness' and 'awareness' in relation to the knowledge and learning of language,[4] and according to Tomlin and Villa (1994: 193), a higher subjectivity in experiencing stimuli is what mainly distinguishes awareness from consciousness, with 'awareness' referring to "a particular state of mind in which an individual has undergone a specific subjective experience of some cognitive content or external stimulus." Awareness, in their definition, is related to behavioral change or another demonstration of the experience. It is, then, often associated with 'meta-awareness,' which includes the knowledge of rules, and often the ability to verbalize them. Building upon the work by Allport (1988) and Carr and Curran (1994), Leow (2000: 560) suggests that the following criteria can be applied in an operationalization and measurement of awareness:

> (a) a show of some behavioral or cognitive change due to the experience of some cognitive content or external stimulus, and either (b) a report of being aware of this experience (meta-awareness) or (c) some form of metalinguistic description of the underlying rule.

It seems, however, that these criteria are in line with Schmidt's (1990) understanding of consciousness as awareness, especially at Level 3, understanding, at which a certain cognitive change is likely to occur, and with his conceptions of consciousness as knowledge.

As mentioned above, apart from consciousness as *awareness,* consciousness understood as *intention* is another kind of consciousness described by Schmidt (1990). It refers to the ambiguous distinction between 'passive awareness' and 'active intent' (Schmidt 1990: 133). In this distinction, the volitional, deliberate nature of an activity is stressed. Within

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[4] It should be noted that in James' (1996) understanding, the term 'awareness' is closely connected to the concept of language awareness, which he defines as "a metacognitive attribute of knowers and competent (though not necessarily native) speakers, to the extent that they have developed metacognition of the skills and associated cognitions that they had hitherto exercised 'unawares'" (James 1996: 140).

the area of L2 learning, this way of approaching the term 'consciousness' underlines the contrast between *intentional* and *incidental* learning. Schmidt (1994: 16, 1995: 7, 2012: 29) admits that incidental learning, which takes place without a learner's intention to learn, is possible, and, in fact, in some situations highly effective.[5] Schmidt illustrates this kind of learning with an example of acquiring vocabulary through reading for pleasure in the L2. Since this kind of learning is quite common, there are also other situations when one has no intention of learning, but learning occurs as a result of appropriate task demands. However, in Schmidt's (2012: 29) opinion, incidental learning is not always effective, as very often cues present in the input can be unattended and not processed properly by the learner. In such cases, learning can be hindered.

Finally, 'consciousness as *knowledge*' highlights the distinction between conscious (*explicit*) and unconscious (*implicit*) knowledge, which will be discussed in more detail in subsection 1.2.2. As stated by Schmidt (1990: 134), this differentiation represents a continuum rather than an opposition. Another distinction that can be drawn on the basis of the criterion of consciousness is that between *declarative* knowledge, that is, knowledge of facts, and *procedural* knowledge, which is knowledge of how to perform an action. Researchers do not agree whether consciousness is involved in both these kinds of knowledge; some of them assume that procedural knowledge develops from declarative knowledge and consciousness is required throughout the process, while others (e.g. Bialystok and Sharwood Smith 1985) argue for an independence of these two types of knowledge. They explain that declarative knowledge develops from unanalyzed to analyzed (thus involving different degrees of consciousness), and procedural knowledge develops on the controlled–automatic continuum.

In a later publication, in an elaboration on the three-level description of consciousness, Schmidt (1994) discussed consciousness as *intentionality*, as *awareness*, as *control*, and as *attention*. The 'control' and 'attention' labels for different specific kinds of consciousness are new in relation to the 1990 definition. Consciousness as *control* can be observed when a learner is "effortfully involved" in a task (Schmidt 1994: 20). Schmidt (1994) sees a justification for control primarily in output situa-

[5] Among others, Krashen's (1985) and Hulstijn's (1995) studies pointed to positive effects of such learning.

tions, for example when a learner controls the use of mental translation in attempts to convey a message in the L2, or when they control a code-switching process, deliberately deciding which language to use in order to adjust it to their interlocutors' needs. In input processing situations, consciousness as attention is more helpful. This shows that there are clear overlaps between control and attention in Schmidt's understanding of these concepts. Consciousness as control is closely related to the notion of *control* and *automaticity* in L2 learning, the distinction between *declarative* and *procedural* knowledge, and *restructuring* (all of which have received considerable interest from SLA scholars, and will be further discussed in relation to certain SLA theories in subsection 1.3.).

The discussion of consciousness in SLA would not be complete without an elaboration on the concept of *attention*, which has attracted particular interest in the SLA literature. Its definition, like other concepts associated with consciousness, can be traced to non-SLA fields. William James, the eminent 19th-century American philosopher and psychologist, made the following, frequently quoted, statement about attention:

> It is the taking possession of the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalisation, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others. (James 1890, after J. N. Williams 2013: 40)

This definition underscores the core quality of attention, namely that it allows one to focus on something at the cost of something else. A similar view is expressed by Sternberg (1999: 68), who defines attention as "the means by which a person actively processes a limited amount of information from the enormous amount of information available through our senses, our stored memories, and our other cognitive processes." This phenomenon is central to the view of attention as a *limited-capacity* (or 'bottleneck') system, an influential conception in the field of cognitive psychology, and more recently – in SLA.[6] Within this view, attention is

[6] As explained by Leow and Bowles (2005: 181), apart from the limited-capacity views on attentional processing, there are other views based on an assumption that humans in fact possess an unlimited attentional resource. According to this theory, a reduced control of attention, influenced by time constraints, decisions to engage in a task, etc., places a limitation on task performance. Such models are referred to as 'interference models.'

fixed and limited, so a learner cannot attend to too many stimuli at a time, and the amount of consecutive mental processing is limited (Tomlin and Villa 1994; VanPatten 1994). Tomlin and Villa (1994: 188) summarize this perspective within two main points: (1) "There is a limitation to the amount the human mind can handle at a given time," and (2) "Information is selected by the attention system because of the processing limitations of the human mind." It is also important to add that not all tasks require the same amount of attention, as some are more demanding in this respect. Therefore, as added by Lamme (2003: 12), thanks to attention, certain stimuli can be processed faster and more efficiently, being more readily accessible for subsequent memory or action. Schmidt (2012: 30) stresses the complex nature of attention, which involves different specific 'mechanisms or subsystems,' and explains that its basic function is to control information processing. Since only some information receives attention in a learning task, VanPatten (1994: 28) makes the point that it would be helpful to know exactly what factors determine what gets attended to in L2 learning. Harley (1994: 58) suggests that the limited attentional capacity can have serious consequences for learners' attention to form and meaning, and therefore this issue requires instructional accommodations. She suggests that learners' affective predispositions can be important here, for example, learners' interest in the input can be an important factor in focusing their attention on it.

The relationship between attention and consciousness is another interesting issue underlying discussions of attention within the SLA field. In Schmidt's (1994) view, attention is one of the levels of consciousness, and is thus embraced by it. According to Koch and Tsuchiya (2006: 16), consciousness and attention are so closely interwoven that they are very frequently treated as identical. However, they claim that this should not be the case, as these two processes serve different functions and have different neuronal mechanisms. Attentional processing does not necessarily need to be accompanied by conscious processing. Sternberg (1999: 68) also makes the point that attentional processes can be either conscious or unconscious. This line of reasoning has been developed by J. N. Williams (2013: 40-41), who argues that attention and 'conscious awareness' can be dissociated, as is the case with subliminal priming effects involving attentional processing of unconscious stimuli. This is an example of paying attention to a stimulus one is not necessarily aware of. There are certain forms of awareness which are largely independent of attention. Therefore,

J. N. Williams (2013: 41) suggests a distinction between 'access awareness,' which requires focal attention and is reportable, and 'phenomenal awareness,' which extends beyond focal attention, is 'fleeting' and thus not reportable.

The relationship between attention and consciousness at the level of awareness is also evident in Tomlin and Villa's (1994) fine-grained analysis of attention with regard to the SLA field. Their view is based on Posner and Petersen's (1990) human attention system and constitutes, apart from Schmidt's (1994, 2012), the most influential and widely cited perspective on attention in SLA. Tomlin and Villa (1994: 190-193) distinguished three interrelated attention areas: *alertness*, *orientation*, and *detection*. *Alertness* denotes a general willingness to attend to the input. The level of alertness can differ, and it influences the performance of a task, as the speed of the selection of information is influenced by the degree of alertness, with high level of alertness facilitating fast and efficient selection of information to focus upon. On the other hand, it is possible that if the selection speed is too high, the accuracy of performance can suffer. An implication for SLA is that a general readiness to process the incoming stimuli has a facilitative effect on learning, although a learner's over-eagerness or too much pressure from the teacher can negatively influence accuracy. *Orientation*, another attentional area, is even more closely connected with SLA. It involves a specific focus of attention on a given group or type of stimuli while neglecting others. This can have either positive or negative consequences for further processing, depending on whether the incoming information is expected or not. Finally, *detection* is related to a registration of certain sensory stimuli at a cognitive level. During detection, specific portions of information are selected and engaged, and this process employs a considerable level of attentional resources. The role of detection in learning is significant, because detected information can undergo further higher-level cognitive processing, for example hypotheses formation and testing. According to Tomlin and Villa, detection is crucial for further processing to take place and "it is ultimately on this level that acquisition must operate" (Tomlin and Villa 1994: 193).

The importance of attention for learning, that is, whether it is a necessary element of learning, has been another widely discussed issue. Schmidt (1990, 1994, 1995) argues that attention controls access to awareness and is responsible for noticing, and, what follows from that, there is no learning without attention. This claim is related to models of

memory: unattended stimuli can only enter short-term memory, and attention is necessary for committing them to long-term memory. Attention to input is necessary for input to become intake that is available for further mental processing (Schmidt 1995; Tomlin and Villa 1994). Schmidt (1995: 17) writes, "in order to acquire phonology, one must attend to phonology; in order to acquire pragmatics, one must attend to both linguistic forms and the relevant contextual features; and so forth. Nothing is free." J. N. Williams (2013: 46) agrees with this point, arguing that although deep mental processing, such as lexical access in dichotic listening (in which a person is simultaneously presented with two different auditory stimuli), can operate without attention, learning requires at least certain levels of attention. He explains that while existing lexical representations in dichotic listening tasks can be activated without attention, the same is not true of "forming new connections in memory," which is the essence of learning. Therefore, he concedes that "there is ample evidence that attention to the relevant forms, or more specifically the relevant dimensions of forms, is necessary" for L2 learning to take place (J. N. Williams 2013: 51).

Apart from attention, *noticing* is another consciousness-related concept that has gained significant interest from SLA researchers, and it is often referred to in discussions and studies devoted to the investigation of the nature of conscious and unconscious processes in learning. As was noted above, Schmidt (1990) placed noticing within the consciousness-as awareness level. It is evident that Schmidt's definition almost equates noticing and attention, as he writes, "[i]t is difficult to distinguish between paying attention to something and noticing or being aware of it" (Schmidt 1995: 18), and goes on to explain that noticing requires a low level of awareness and in this is nearly isomorphic with attention, however, it is very closely related to one type of attention, namely focal attention. Mitchell and Myles (2004: 184) explain that Schmidt uses the term 'noticing' to refer to the process of bringing some stimulus into focal attention, that is, registering its simple occurrence, whether voluntarily or involuntarily.

Schmidt (1995: 29) stresses the difference between *noticing* and *understanding* (which is another consciousness-as-awareness concept), pointing out that while noticing is a lower-level "conscious registration of the occurrence of some event," understanding involves higher-level cognitive processes and "implies recognition of a general principle, rule or

pattern. Noticing refers to surface level phenomena and item learning, while understanding refers to deeper level of abstraction related to (semantic, syntactic, or communicative) meaning, system learning." In order to clearly illustrate the distinction between noticing and understanding, Schmidt provides the following examples of L2 learning situations which involve both or either of the two:

- In morphology, awareness that a target language speaker says, on a particular occasion, "He goes to the beach a lot," is a matter of noticing. Being aware that *goes* is a form of *go* inflected for number agreement is understanding.
- In syntax, awareness that on some occasions speakers of Spanish omit subject pronouns is a matter of noticing. Being aware of [the fact] that Spanish is a pro-drop language, which entails numerous syntactic consequences beyond such surface phenomena as the presence or absence of pronouns, is a matter of understanding. (Schmidt 1995: 30)

Robinson (1995a: 296) notes that *detection*, one (the final) area of attention from Tomlin and Villa's (1994) model, is very similar to Schmidt's (1990) *noticing*. Reconciling these two points of view, he suggests that the concepts of attention, noticing and memory are closely related, and argues that noticing is "detection plus rehearsal in short-term memory, prior to encoding in long-term memory." He adds that noticing comprises what is "both detected and then further activated following the allocation of attentional resources from a central executive" (1995a: 297). In this way, noticing is described as a process one step higher than mere paying attention; what gets attended to is immediately subjected to minimal further processing, and this processing involves some memory operations. Robinson (1995a, 2008) thus claims that focal attention together with certain memory processes (for example, "maintenance and elaborative rehearsal") lead to noticing, and are responsible for the level and extent of awareness within noticing (Robinson 2008: 637).

Truscott and Sharwood Smith (2011) agree that noticing does not denote the level of understanding, yet it involves more than just a global 'awareness of input.' They explain the concept of noticing in relation to the different levels of awareness in the following way:

> Noticing is more than just awareness of input; it involves awareness specifically of forms in the input. However, it is much less than full awareness of form, as conscious understanding is excluded. Thus, no-

> ticing necessarily has a lower boundary that distinguishes it from simple awareness of input and an upper boundary that distinguishes it from awareness at the level of understanding. (Truscott and Sharwood Smith 2011: 501)

Truscott and Sharwood Smith (2011: 503) interpret Schmidt's understanding of the term 'noticing' by comparing it to 'apperception,' a term discussed by Gass (1997); they conclude that these two concepts share core features, as both involve "the recognition of an aspect of the input as special on the basis of comparison with past experience."

Factors contributing to the ability to notice features of the target language structures include the frequency of their occurrence and their perceptual salience in input, their functionality, as well as task demands and a learner's previous knowledge and skills (Gass 1988; Schmidt 1990; Harley 1994). Gass (1988: 202) explains that previous knowledge relevant for noticing L2 items can involve, for example, "knowledge of the native language, knowledge of other languages, existing knowledge of the second language, world knowledge, [and] language universals." Izumi (2013: 35) agrees that noticing is not always a voluntary or controlled process, as it is subject to both input-related and learner factors. Similarly, Philp (2013: 465) stresses that noticing is dependent on various internal and external factors, and the availability and allocation of attentional processes varies according to individual learners and the kind of input. These factors include: individual differences (e.g. working memory and aptitude), past learning and knowledge (e.g. the L1, L2 proficiency), task specificity (whether learners are induced to notice or not), and the input itself (e.g. the difficulty of the target feature, its frequency and saliency, and its relevance for the learner).

Recapitulating this section on the definition and scope of consciousness in SLA, the following points should be made:

- Consciousness, both outside and within SLA, is a complex notion, hence its various definitions and conceptualizations, dependent on a specific field and a given theory within it.
- In cognitive psychology, neuroscience and philosophy, definitions of consciousness are often associated with subjective experience of a phenomenon, wakefulness, verbal thinking, and knowledge, with attentional processing, activation, intentionality, and value as its essential features.

- Consciousness in SLA is most commonly seen as an umbrella term embracing other related concepts, a view mainly based on Schmidt's (1990, 1994, 1995) delineation of consciousness as awareness, consciousness as intention, and consciousness as knowledge.
- Consciousness as awareness includes the concepts of noticing and understanding. Noticing involves the perception of a feature, but also a certain level of awareness of its form; understanding, in turn, denotes higher-level mental processes.
- Attention, another facet of consciousness, regulates a selection of information and the efficiency of processing stimuli in learning. Attention does not necessarily involve conscious processing (hence a vital distinction into peripheral and focal attention).
- Consciousness as knowledge refers to distinctions between declarative and procedural knowledge, as well as between explicit and implicit knowledge, which will be explained in more detail in section 1.2.2.

1.2. Consciousness and L2 learning

This section will shed light on a theoretical perspective on the role of consciousness in L2 learning. First, the links between consciousness and working memory, another crucial concept in SLA, will be discussed. Then, the distinctions between explicit and implicit knowledge, and explicit and implicit learning, in relation to the L2 context, will be outlined. Finally, a five-stage fine-grained model on L2 learning, devised by Leow (2015a, 2015b), will be explained. The model also highlights the role of consciousness in the processes and products of L2 learning.

1.2.1. Consciousness and working memory

The working memory model is a theory which explains how memory processes are involved in performing different mental tasks. Baddeley (2007: 1) defines *working memory* as "a temporary storage system under attentional control that underpins our capacity for complex thought." Several important characteristics of the system can be assumed from this definition, one of them being its temporary character, denoting that it deals with current performances of mental operations. Another point is that working

memory is controlled by one's *attention*. Finally, working memory is characterized by *limited capacity*, which means that a limited amount of information can be stored and manipulated at a given moment, and that an individual's working memory resources constrain the number and type of tasks that can be processed. While some tasks can be carried out concurrently, the performance of others might be impossible because of working memory capacity limitations.

There are three components of the original working memory model (Baddeley and Hitch 1974; Baddeley 1986): 'the phonological loop' and 'the visuospatial pad' (which are two temporary storage systems), and 'the central executive' (a system for controlling attention). The phonological loop is a system for storing speech-based and generally acoustic information, and includes a "subvocal rehearsal system" which helps to register visual information as long as it can be subvocalized and remembered on the basis of certain acoustic features. Hence, for example, a string of words which contain the same vowels will be registered more easily than a string of acoustically unrelated items (Baddeley 2003: 191). The visuospatial sketchpad is a parallel store which holds visual, spatial and probably kinesthetic information, and is particularly useful in, for example, storing and manipulating information in reading tasks ("moving the eyes accurately from the end of one line to the beginning of the next"), as noted by Baddeley (2003: 200). Both these systems are supposed to store information for a brief period of time and in a relatively passive way, and no attentional processes are involved.

The central executive, on the other hand, is responsible for performing higher-level executive functions; it is the place where attentional control over the working memory system is located. Originally, it was considered to interact with long-term memory and to control and coordinate the workings of the phonological and visual stores, but in a revised version of the working memory model (Baddeley 2000, 2007), the main function of the central executive is believed to be the control and allocation of attentional resources, carried out through focusing, dividing and switching attention. As such, the processes performed by the central executive are considered to be an important individual factor determining a number of cognitive capacities in language and other areas. Working memory span has been found to correlate with the level of complex cognitive skills and standard intelligence tests (Baddeley 2003: 202). Concerning language abilities, working memory (not only the central executive, but its other

components as well) is considered to be an important foreign language aptitude factor (Biedroń 2012; Biedroń and Szczepaniak 2012; Wen, Biedroń and Skehan 2017), influencing both comprehension and production skills. As such, it affects the speed and efficiency of language learning. Acknowledging the role of working memory in a contemporary understanding of the concept of language aptitude, Wen, Biedroń and Skehan (2017: 17) make the point that its specific components contributing to aptitude can be related to learners' age, with the central executive playing a central role in the case of adult learners. In a study on the effects of memory on final outcomes of learning, Biedroń and Szczepaniak (2012) found differences between working memory and short-term memory measures in accomplished bilinguals and intermediate learners, with a special role of the two working memory components, the phonological loop and the central executive, being responsible for the higher attainment of the accomplished bilinguals. The researchers suggest that the interplay of better developed memory abilities and greater experience with learning, resulting in more efficient management of working memory operations, could contribute to superior learning outcomes in the accomplished bilinguals. Tagarelli, Mota and Rebuschat (2015) investigated the relationship between working memory capacity and L2 syntactic attainment, revealing that working memory correlated with grammatical accuracy in an explicit learning condition, while no correlations were reported for the implicit group. It can thus be suggested that working memory measures can only "be predictive of explicit learning," although, as acknowledged by the researchers, more research is needed to substantiate such claims (Tagarelli, Mota and Rebuschat 2015: 243).

Finally, within the more recent working memory model (Baddeley 2000, 2007), a further component, 'the executive buffer,' has been added. Contrary to the central executive, it stores information, but does not involve attentional processes (Baddeley 2003: 203). This component is responsible for performing a number of important functions. Most importantly, being a 'multimodal' storage system, it integrates information from different sources and of different kinds (for example, visual, auditory and kinesthetic) within working memory, and creates a unified, coherent memory episode on its basis. Thus, Baddeley (2007: 148) defines it as "a temporary storage system that is able to combine information from the loop, the sketchpad, long-term memory, or indeed from perceptual input, into a coherent episode." Accessing information held in long-term

memory allows for the creation and utilization of links between new information encountered during the online processing of a task and stored information already possessed by an individual. The capacity of the episodic buffer is limited, and is regulated by the number of episodic memory chunks that it can hold simultaneously. Elaborating further on the model in relation to language processing, Baddeley (2015: 21) explains that the buffer takes information from the sketchpad and phonological loop storages, emphasizing that the loop has a capacity not only for storing, but also for rehearsal, both subvocal and vocal, thus allowing for continuous maintenance of information.

Although the multi-component model proposed by Baddeley and Hitch (1974) and later elaborated on by Baddeley (2000) is the most influential and the most widely discussed working memory theory, there are also other working memory descriptions, of which Cowan's (1999) embedded processes model seems to be particularly relevant to language-related phenomena. Cowan (2015: 30-31) stresses that working memory plays a crucial role in language comprehension, especially in an L2 context, in guiding understanding or allowing guessing on the basis of context when some vocabulary is not known. This model views working memory as a cognitive process which retains information and, by allowing access to it, it enhances the performance of mental tasks. In this model, a process orientation with the particular role of attentional focus and the activation of portions of long-term memory is stressed. Working memory is thus conceived as the activated part of long-term memory, and the drawing of information proceeds on the basis of hierarchical, embedded faculties: the currently activated part of long-term memory which is attended to is embedded in the currently activated subset of long-term memory and subsequently embedded in the general memory system. Both voluntary and involuntary processes control the focus of attention, and the embedded nature of working memory processes allows for an overlapping of stimuli and the features that they activate. For example, "a given verbal stimulus can activate visual, orthographic, phonological, morphological (word-form), syntactic, semantic and pragmatic features all at once" (Cowan 2015: 37). Awareness plays an important role, enhancing encoding and making episodic representations available for subsequent recall.

Discussion of a possible relationship between working memory and consciousness points to some interesting observations and leads to different interpretations concerning cognitive processing. Generally, research-

ers seem to agree that these two concepts appear to be related. According to Baars (1988, 1997), the feature of *reportability* is a key aspect in the relationship between consciousness and working memory. At the same time it needs to be stressed that reportability is central to conscious operations, as explained by Baars (1997: 366): "[c]onscious experiences can be reported in many ways. We can use speech or writing, sign language, pointing, even an expressive roll of the eyes. These are all voluntary, communicative acts that are used to report conscious contents." He further notes that consciousness constitutes "the active element" of working memory operations, that is, the element that can be explicitly reported (Baars 1997: 369). More specifically, Baars and Franklin (2003: 166) explain that the active elements of working memory are, for example, "perceptual input, rehearsal, recall, and the act of responding with a recalled item," and all of them are "accurately reportable." Interestingly, conscious aspects are found within numerous working memory components and their functions, including the phonological store (evident in "silent rehearsal of words and numbers"), the visuospatial sketchpad (evident in visual imagery), and the central executive (evident in "voluntary manipulation" of information) (Baars and Franklin 2003: 166).

Baddeley (2000, 2007, 2015) also sees a close link between consciousness and working memory, but his explanation evolves around the fact that conscious processing involves *coordinating information* from different sources, in which working memory plays a vital part. The relationship between consciousness and working memory is therefore most evident within the episodic buffer system; thanks to consciousness, one is able to keep track of their experience as well as reflect on it. Baddeley (2007) points out that 'keeping track' is similar to storage, and 'reflecting' can be regarded as a way of processing, activities which are typical of the working memory system as a whole. The functions performed by the episodic buffer, especially these connected with utilizing long-term memory resources (for example, semantic and linguistic) during an ongoing mental task require at least a certain amount of consciousness. In this way, by integrating the various memory resources stored within memory, that is within the storage systems of working memory itself, within long-term memory, and perception, the episodic buffer "enables their content to become available to conscious awareness" (Baddeley 2017: 299). This process of binding often requires the conversion of acoustic information into a word, and drawing upon acoustic and semantic long-term memory. For

example, in reading or listening comprehension, syntax and semantics from the long-term memory store help transform acoustic or visual signals into coherent phrases. The final effects in the form of coherent phrases, memory episodes or chunks, are consciously accessible. The creation of links between working memory and consciousness is thus an important function of the episodic buffer (Baddeley 2017: 306).

It should also be noted that despite a general agreement about the relationships between working memory and consciousness, voices challenging this view can also be heard. Soto and Silvanto (2014) argue for a reappraisal of the connections between working memory and consciousness, questioning the belief that consciousness is necessary for working memory operations and that these operations are available for accurate reporting. They quote investigations (Hassin 2013; Custers and Aarts 2010) which indicated that engaging in working memory operations was possible "without intentional orientation and awareness of those operations," as well as without an awareness of the goal of the activity or of the very fact of engaging in it (Soto and Silvanto 2014: 520). A possible dissociation between the contents of working memory and one's subjective experience or introspection of it is also suggested, as well as effective performance of working memory operations on unconscious information. Addressing these issues, Stein, Kaiser and Hesselmann (2016) offer a critical evaluation of the research methodology, the findings and interpretations of some of the studies. Among other comments, they point to participants' response biases in measures on a conscious recording of visual stimuli which, as a result, may not provide evidence for a dissociation between objective measures and participants' subjective experience. Concluding, Stein, Kaiser and Hesselmann (2016: 3) state, "although these recent studies on non-conscious WM opened an exciting new avenue for research on the interplay between consciousness and WM, it would be premature to revise our current understanding of a tight link between WM and conscious awareness."

1.2.2. Explicit and implicit knowledge and learning

Consciousness (or its lack) is the main factor distinguishing *explicit* and *implicit* knowledge and learning, both in the field of cognitive psychology, where these terms originated, and in SLA. The explicit/implicit distinction is so closely connected with consciousness that, as noticed by

Komorowska (2014: 7), discussions on the role of consciousness and/or awareness in the field of SLA concentrate mainly on explicit and implicit knowledge and learning.

According to Sharwood Smith (1981: 159), *explicit knowledge*, broadly speaking, denotes a *conscious analytic awareness* of the formal properties of the target language, whereas *implicit knowledge* means an *intuitive feeling* of what is correct or acceptable. A review of the literature on explicit and implicit knowledge (N. Ellis 1994, 2011; R. Ellis 2004, 2009; DeKeyser 2003; Hulstijn 2005; Roehr-Brackin 2015) makes it possible to outline the most important criteria for distinguishing characteristic features of both kinds of knowledge. The most basic one, parallel to descriptions of explicit and implicit learning, concerns the criterion of *consciousness*: "[i]mplicit knowledge is tacit and intuitive whereas explicit knowledge is conscious" (R. Ellis 2009: 11). R. Ellis (2004: 229) thus treats explicit knowledge as a term which can be consistently used in reference to concepts underlying conscious mental representation, such as: "*language awareness, metalinguistic phenomena / awareness / abilities / performance, analyzed knowledge, conscious knowledge, declarative knowledge / rules /memory, learned knowledge and explicit knowledge*" (original emphasis). Thus, while implicit knowledge allows learners to recognize an error, only explicit knowledge makes it possible to recognize the nature of the problem, the rule that is violated. Therefore, as Hulstijn (2005: 130) writes, "[e]xplicit and implicit knowledge differ in the extent to which one has or has not (respectively) an awareness of the regularities underlying the information one has knowledge of." Another criterion is connected with implicit knowledge being *procedural*, and explicit knowledge – *declarative*. This means that due to implicit knowledge, learners' verbal behavior reflects the underlying grammatical rules, yet explicit knowledge denotes the knowledge of linguistic facts. "[E]xplicit knowledge is knowledge *about* language and *about* the uses to which language can be put" (R. Ellis 2004: 229). R. Ellis (2009: 12) notes, however, that procedural implicit knowledge of proficient language users constitutes a system, unlike the knowledge of not necessarily connected 'facts.'

The following criterion is associated with *knowledge accessibility*; "[i]mplicit knowledge is available through automatic processing whereas explicit knowledge is generally accessible only through controlled processing" (R. Ellis 2009: 12). This means that in spontaneous, unplanned language use, implicit knowledge is likely to be accessed; explicit knowledge consisting of

declarative facts needs processes based on attention and consciousness to be accessed. However, whether explicit knowledge can be automatized and rapidly accessible in online processing required in spontaneous language use is a debated issue. Some researchers (e.g. DeKeyser 2003; Suzuki and DeKeyser 2017) suggest that explicit knowledge can be highly automatized and thus instantly available as well. In light of this kind of reasoning, it can be concluded that the development of highly automatized explicit knowledge can be viewed as an aim in L2 learning.

The next characteristic is related to the kind of *evidence* available for each kind of knowledge. While implicit knowledge is demonstrated in a learner's *actual L2 use*, without the ability to explain the underlying rules, explicit knowledge is *verbalizable*, either with or without the use of metalinguistic terminology. The *learnability* criterion comes next: "[t]here are limits on most learners' ability to acquire implicit knowledge whereas most explicit knowledge is learnable" (R. Ellis 2009: 14). For example, age constraints constitute the 'limits' on implicit knowledge development, while generally, explicit knowledge can always be developed, with certain limitations imposed by individual factors of different kinds.

The following point discussed by R. Ellis (2009: 13) concerns the fact that implicit knowledge underlies "default L2 production," while explicit knowledge is employed if a learner encounters a difficulty in L2 performance. This means that implicit knowledge is "fully internalized" and thus assumed to lead to production. In *fluent naturalistic language use*, it is more natural to draw on implicit knowledge resources, because the primary focus is on the meaning of messages (in comprehension and production), not on their form (N. Ellis 2005, 2007b; Roehr-Brackin 2015). However, in the case of a problem, when *declarative linguistic information* is needed to complete a task (for example, in grammaticality judgments or other problem-solving tasks), explicit knowledge is likely to be called upon. Explaining this feature of explicit knowledge, Roehr (2010: 8) writes that in the case of comprehension or production difficulty during fluent language use, learners tend to deliberately focus on the forms that are needed to convey the meaning, making "conscious efforts to analyze input or to construct or monitor output, utilizing internal or external resources."[7]

[7] Similarly, N. Ellis (2007b: 26) explains that the flexibility of habitual (implicit) processes, of which fluent language use is an example, works well in predictive situations; when a novelty in the form of an unpredicted difficulty appears, conscious processing is involved to handle it.

As a further point, R. Ellis (2009: 14) provides arguments for a dissociation and distinctiveness of implicit and explicit knowledge. These arguments are based on neurological evidence, pointing to the fact that explicit and implicit memory are stored in different parts of the brain and are operated through different brain functions (Paradis 1994). However, whether the distinctiveness of these two types of knowledge is dichotomous or continuous remains a controversial issue. Although the two knowledge systems are distinct, however, it needs to be stressed that a combination of both implicit and explicit knowledge contributes to effective L2 performance (N. Ellis 2005; Roehr-Brackin 2015). R. Ellis (2009: 15) explains that since learners can develop both implicit and explicit knowledge even of the same L2 feature, it is inevitable that both of them are involved in the construction of utterances.

The position of explicit learning and knowledge in the process of forming implicit knowledge, and the existence and the nature of an interface between explicit and implicit knowledge continue to be debated issues (VanPatten and Benati 2015: 114-115). As explained by N. Ellis (2011: 35-36), the explicit-implicit knowledge relationships have been viewed differently in different theoretical and pedagogical positions. While certain traditional approaches, exemplified by the grammar translation method and the cognitive code, assumed that implicit knowledge formation is preceded by explicit learning (a *strong interface* position), other pedagogical approaches (such as audiolingualism and the communicative approach) as well as theoretical explanations, the best example being Krashen's Monitor Model (see section 1.3. for a more detailed discussion on the role of consciousness in this model), illustrate the *non-interface* position, according to which no conversion of explicit to implicit knowledge is possible. There is also a middle position, the *weak interface* one, accepted by a number of SLA researchers (N. Ellis 1994, 2011; Long 1991), which sees a role for explicit learning in contributing to implicit knowledge, but under certain conditions and in certain situations. For example, it can facilitate the noticing of L2 features in the input and thus facilitate acquisition, it can make learners aware of what they still have to pay attention to and learn by allowing comparisons between the input they are exposed to and the output they produce (the 'noticing the gap' function), and it can help them consciously monitor their output (N. Ellis 2011: 37). Discussing the interface issues, Suzuki and DeKeyser (2017) suggested that there is a finer-grained distinction between implicit

and automatized explicit knowledge. Although both kinds of knowledge allow instant information access, only explicit knowledge includes consciousness about linguistic forms. Their study indicated an interface from automatized explicit to implicit knowledge, providing "supporting evidence for the claims regarding the facilitative role of explicit knowledge" (Suzuki and DeKeyser 2017: 35).

Knowledge, both explicit and implicit, is the result of learning, and the terms 'consciousness' and 'conscious' are also obvious ingredients in the definitions of L2 explicit and implicit *learning*. A direct relationship between a type of learning and a type of resulting knowledge does not seem to exist, however. R. Ellis (2009: 6) emphasizes that although the concepts of explicit/implicit learning and explicit/implicit knowledge are related, they are distinct: learning refers to a process, and knowledge to its products. It is possible to develop explicit knowledge through reflection stimulated by implicit learning; similarly, explicit learning can result in the development of implicit knowledge of another linguistic feature.[8]

One of the most frequently cited definitions of the two kinds of learning comes from Hulstijn (2005: 131), who stated that

> Explicit learning is input processing with the conscious intention to find out whether the input information contains regularities and, if so, to work out the concepts and rules with which these regularities can be captured. Implicit learning is input processing without such an intention, taking place unconsciously.

As suggested by this definition, *explicit learning* is a *conscious* and *intentional* process, in which concepts are formed and links among concepts are made in a learner's mind. This is also congruent with other researchers' understanding of explicit and implicit learning and knowledge (Hulstijn 2002: 206, R. Ellis 2009: 7). N. Ellis (1994: 1) stresses that hypotheses formation and testing are typical in explicit learning while the learner tries to identify and make sense of the linguistic structure. In his definition, explicit learning takes place "when the learner has online awareness, formulating and testing conscious hypotheses in the course

[8] The positive effects on the outcomes of form-focused instruction presented in Norris and Ortega's (2000) meta-analysis of empirical investigations suggest that explicit learning can result in implicit knowledge, although it needs to be remembered that the links between explicit/implicit instruction and explicit/implicit learning are not direct and these are definitely distinct constructs (R. Ellis 2002, 2009).

of learning," while implicit learning occurs "when learning takes place without these processes; it is an unconscious process of induction resulting in intuitive knowledge that exceeds what can be expressed by learners" (N. Ellis 1994: 38-39). Dörnyei (2009: 136) contends that explicit learning is typically associated with learning in the classroom, through formal instruction which either presents rules and explanations to learners or encourages them to formulate and test hypotheses. Explicit learning thus usually involves the employment of learning strategies, controlled practice, and an analysis of the material. Quoting Chi and Ohlsson (2005), Dörnyei (2009: 136) lists higher-level complex processes typical of explicit learning: "integrating information from multiple sources, generating inferences, connecting new information with existing knowledge, retrieving appropriate analogies, producing explanations, and coordinating different representations and perspectives, as well as abandoning or rejecting prior concepts that are no longer useful." On the other hand, Dörnyei (2009: 138) states that when learning implicitly, one is not even aware of the fact they are learning, or of the results of learning. Thus, it is usually expected to take place in communicative L2 use.

N. Ellis (2015: 12) discusses the limitations of purely implicit learning, stating that "L2 acquisition by implicit means alone is limited in its success." Even with exposure to sufficient input, only some part of it can become intake in naturalistic L2 acquisition. A high number of grammatical features, "low salient cues," are not "picked up" by learners in naturalistic settings, because they are not perceived, often being overshadowed by more salient features. This phenomenon constitutes a valid argument for a need for explicit learning. Moreover, N. Ellis (2007b: 18, 2011: 35) points to fundamental differences between child L1 acquisition and adult L2 learning with regard to the kinds of learning mechanisms that are required; while certain elements of the L2 can be acquired implicitly on the basis of exposure and interaction in a communicative context (a typical setting for L1 acquisition), most linguistic material needs conscious explicit processing in order to be mastered, at least by adult learners. DeKeyser (2003: 334) suggests that "somewhere between early childhood and puberty children gradually lose the ability to learn a language successfully through implicit mechanisms only," and start relying on both implicit and explicit learning. For adult learners, such a combination ap-

pears to be helpful.[9] Concluding their brief overview of the role of implicit learning, VanPatten and Benati (2015: 36) state, "SLA has to be largely implicit in nature, that is, involve implicit learning, but this does not mean that learners – especially adults – do not attempt to engage explicit learning in some way." In this way, they stress that the development of communicative competence is the ultimate goal of L2 learning, at it consists in appropriate language behavior, not an articulation of explicitly learned rules. Therefore, researchers seem to agree that implicit L2 knowledge is the desired final stage of learning (N. Ellis 2011; R. Ellis 2009). As stated by Sharwood Smith (1981: 159), "[t]he ultimate, most highly prized goal of learning, i.e., spontaneous, unreflecting language use, is uncontroversial."

Dörnyei (2009) argues that a number of factors underlie the positive influence of *explicit learning* on the final outcomes. On the basis of a literature review (N. Ellis 2005; R. Ellis 2005a; Hulstijn 2005; Lightbown and Spada 2006), he suggested that the following factors have an impact on successful explicit learning:

- learner characteristics (the learner's age, metalinguistic sophistication, prior educational experience, motivation, cognitive style, and language aptitude, especially working memory capacity (…));
- L2-L1 similarities and differences;
- characteristics of the target L2 structure/area (e.g. complexity, prototypicality, regularity, form- or meaning-based nature (…));
- characteristics of the available/accessible natural L2 input (e.g. overall amount and the frequency and salience with which the target L2 structures are represented in it (…));
- the length of time available for the learning process. (Dörnyei (2009: 174)

As can be seen from the above discussion, both explicit and implicit learning can contribute to effective language use. Both can also be traced on the continuum of the processes and products involved in the stages of learning. These will be described in the following subsection.

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[9] N. Ellis (2015: 15) stresses the usefulness of the "complex adaptive system" of L2 learning based on an interaction of both explicit and implicit learning processes, in that it is "far richer than that emergent from implicit or explicit learning alone."

1.2.3. L2 learning as a process and as a product

Leow (2015a, 2015b) makes the point that in order to get a deeper understanding of the nature of learning, either explicit or implicit, it is helpful to trace what learning consists of, that is, the processes and products that it embraces. He thus devised a model of L2 learning which builds upon the simpler, "course-grained theoretical framework for the L2 learning process" (Leow 2015a: 15) generally accepted by SLA researchers, such as McLaughlin (1987), Gass (1997) or VanPatten (2007). The 'course-grained' framework is based on the following four stages: *Input* ⇒ *Intake* ⇒ *Internal system* ⇒ *Output*. Leow's (2015a, 2015b) proposed framework, although based on the same four main levels, is 'finer-grained,' as it comprises more specific stages. The main premise of this model is that L2 learning involves a series of both processes and products, which are interrelated and which occur in a sequence. The framework is summarized in Table 1.

Table 1. A theoretical framework for the processes and products in L2 learning (adapted from Leow 2015a: 17; Leow 2015b: 49).

Stage	Level	Process or product?	Description
	INPUT	Product	L2 data that learners are exposed to
Stage 1	↓	Process	Input processing
Stage 2	INTAKE	Product	A result of what the learner attended to or internally processed in input processing (Stage 1)
Stage 3	↓	Process	Intake processing
Stage 4	INTERNAL SYSTEM	Product	L2 knowledge resulting from intake processing at Stage 2; either explicit or implicit
Stage 5	↓	Process	L2 knowledge processing; output processing
	OUTPUT	Product	Representative L2 knowledge demonstrated externally

As can be seen in Table 1, the framework incorporates five stages of learning occurring between the two external products, input and output. Within them, there are three processes (Stages 1, 3 and 5) and four products (Stages 2 and 4, and the external stages, input and output). Leow (2015a, 2015b) explains that in general terms, learning as a process refers to the processing that takes place internally, within the learner's mind, and learning as a product denotes what has been learned as a result of this internal processing.

Leow (2015a: 17-21) provides a brief yet comprehensive account of the stages within his framework. First, learners are exposed to input, which can be either written or oral, authentic or pedagogical (i.e. modified specifically for the purpose of learning). Stage 1, *input processing*, is defined by Truscott and Sharwood Smith (2011: 498) as "the interaction between the learner's mind and instances of the language to which the learner is exposed." At input processing, both the content and the linguistic features encountered in the input are processed in order to become intake. What a learner pays *attention* to plays an important role here, because not all of the vast amount of the incoming information can be converted into intake. This is in line with the 'limited capacity processor' metaphor of the L2 learner. Attention and further processing are in turn influenced by the level of mental effort that needs to be invested in the processing in the L2 data. It is worth noting here that input processing is considered to be a core phenomenon in numerous SLA theories and models (Gass 1997; McLaughlin 1987; Schmidt 2001; Tomlin and Villa 1994), although they differ as to how much attention and effort is needed for an effective conversion of input to intake. For example, Gass (1997) makes a distinction between 'apperceived input' (recognized but not comprehended) and 'comprehended input,' noting that only the latter can be further processed, either for "the purpose of a conversational interaction" or "for the purpose of learning" (Gass 1997: 25).

Intake (Stage 2) is thus an immediate product of input processing, and is influenced by *attentional* and other *cognitive processes*. Leow (2015a: 18) stresses, however, that intake does not denote acquired knowledge, but is just one of the steps within the internal processing that lead to the final outcomes. He writes, "[g]iven that intake occurs before any learning takes place, intake crucially does not represent internal L2 knowledge." A similar view on intake was expressed by VanPatten (2002: 757), according to whom it is "the linguistic data actually processed from the input and

held in working memory for further processing." Chaudron (1985: 1) highlighted the transitional character of the concept of intake, viewing it as a series of stages, from 'preliminary' to 'final' intake. He also confirmed the place of intake between input processing and subsequent stages of learning, referring to intake as "the mediating process between the target language available to learners as input and the learners' internalized set of L2 rules and strategies for second language development." Recapitulating the position of intake within the different theoretical perspectives, Leow (2015a: 19) stresses three main points: "(1) due to L2 learners' cognitive, attentional constraints, only a subset of input can be converted into intake, (2) not all intake is further processed, and (3) what is processed may be incorporated into the developing L2 grammar." Building further on the finer-grained framework of L2 learning, Leow (2015a) constructed a "model of the L2 learning process in instructed SLA," in which he introduced a further specification within the major process stages. Consequently, he divided intake into the following steps (pp. 242-243):

- *Attended* intake (*peripheral attention* paid to some features of input; likely to be discarded),
- *Detected* intake (some *selective attention* paid to input, minimal processing, *no awareness*; may or may not be processed further),
- *Noticed* intake (*attention*, cognitive registration, *low level of awareness*; likely to be stored in working memory and incorporated in the L2 grammar system).

In the case of intake (Stage 2) being further processed, Stage 3, *intake processing*, is activated. Intake processing is triggered and assisted by a range of higher-level cognitive variables, such as data- and conceptually-driven processing, form-meaning connections, and hypothesis formation, testing, rejection or confirmation (Leow 2015a: 19). Data-driven processing is less demanding in terms of cognitive effort and is likely to result in 'item learning' (that is, storing unsystemized, discrete linguistic data) (Leow 2015a: 243). More complex conceptually-driven processing, which usually involves a higher level of awareness, will potentially lead to a longer activation of the data in working memory and, as a result, to converting them to the internal system. This can be facilitated by different factors, such as activation of prior knowledge of related grammatical structures, which can influence the depth of processing and the ease of encoding. Leow (2015a: 244) further explains that in relation to explicit

learning, increased depth of processing, which can include, for example, hypotheses testing and rule formulation, often leads to increased levels of awareness, from the lowest level of *noticing*, though the level of *reporting*, to the highest level of *understanding*. The processes outlined above contribute to an effective 'restructuring' of the L2 data, necessary for their storing within the internal system (Leow 2015a: 245).[10]

As suggested before, under appropriate conditions, following intake processing, some of the information can become the *internal system* (Stage 4), which can take the form of a learner's emerging *systemized L2 grammar* (Leow 2015a: 20, 245). The newly formed knowledge becomes integrated with the already existing system, which is "dynamic and interactive, with knowledge itself being accumulative and interactive" (Gass 1997: 25). On the learner's part, constant and intensive analysis and reanalysis of aspects of the new and existing parts of knowledge is needed to foster the integration process.

As noted by Leow (2015a: 20), *knowledge processing* (Stage 5) is an area which has received relatively little interest from researchers, one notable exception being Swain's (1985) Output Hypothesis. At this stage, the learner manipulates the new L2 knowledge and other kinds of knowledge (semantic, syntactic, phonological, but also pragmatic and cultural) that form a basis for output. Leow (2015a: 245) further notes that the levels of processing and awareness, as well as the speed of activation of knowledge also play an important role here. Together with the learner's proficiency level, these factors largely influence the fluency and accuracy of L2 production.

Finally, *output*, the last product within the framework, is "any visual or oral manifestation or grammatical description of the learned L2 knowledge," as it reflects the internal system of a learner's grammar (Leow 2015a: 20). It needs to be added that a learner's output can also become their input, with the use of self-monitoring and feedback on their production. In this way, the framework of L2 learning described in this section is not linear, but may undergo changes and modifications.

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[10] It is also important to add that apart from cognitive effort, depth of processing, and level of awareness, other variables, such as motivation and other individual differences, and the type of L2 structure, also play a role in intake processing (Leow 2015a: 245).

In sum, the discussion of consciousness in L2 learning points to the following noteworthy comments:

- Consciousness seems to be linked with working memory, a cognitive factor responsible for storing information under attentional control.
- Consciousness is the main factor distinguishing explicit from implicit knowledge and explicit from implicit learning.
- Consciousness (in the form of attention and awareness, i.e. noticing and understanding) serves important functions at each stage of learning, from noticing input and input processing through processing intake to producing output.

1.3. Theoretical underpinnings of consciousness in L2 learning

In this section, selected theoretical underpinnings (theories, models, hypotheses, and frameworks) toward explaining the role of consciousness in SLA will be briefly outlined. Although they differ in the scope and range of issues they specifically pertain to, what unifies them is that they all refer, in one way or another, to the notion of consciousness (its different types and levels) and conscious processes in the context of language learning. Nine theoretical approaches will be discussed: Krashen's Monitor Model, Schmidt's Noticing Hypothesis, VanPatten's Input Processing, McLaughlin's Information Processing Theory of SLA, N. Ellis' Cognitive-Associative CREED, Swain's Output Hypothesis, Long's Interaction Hypothesis, DeKeyser's Skill Acquisition Theory, and Truscott and Sharwood Smith's MOGUL framework. The theoretical positions will be grouped under four headings according to the stage of learning that they mainly pertain to.[11]

1.3.1. Theories focusing on input and input processing

Krashen's ***Monitor Model*** (1981, 1982, 1985), the first theory that introduced the distinction between conscious and unconscious processes in

[11] The stages of learning correspond to Leow's (2015a) fine-grained framework of L2 learning presented in subsection 1.2.3., and the division of the theories has been inspired by the discussion of SLA theories presented in his work.

SLA,[12] particularly strongly highlights the importance of input in L2 development. The cornerstone of the theory, that is, the central distinction based on whether the processes involved in L2 development are conscious or subconscious, is expressed in the *Acquisition-Learning Hypothesis*, formulated by Krashen (1985: 1) in the following way:

> There are two independent ways of developing ability in second languages. "Acquisition" is a subconscious process identical in all important ways to the process children utilize in acquiring their first language, while "learning" is a conscious process that results in "knowing about" language.

A basic premise of the whole theory is that while acquisition is a natural process taking place without a learner's consciousness, the process of learning involves different mechanisms, based on conscious processing. Therefore, the terms 'acquisition' and 'learning' in Krashen's understanding seem to refer to implicit and explicit learning, respectively, and in fact Krashen is credited with introducing these two conceptions to the field of SLA (N. Ellis 2008: 2).[13] Concerning the relation between implicit and explicit knowledge, Krashen takes a *non-interface* position in relation to the acquisition/learning division, which means that learned knowledge cannot become acquired knowledge, as acquisition and learning are separate processes which lead to the formation of distinct kinds of knowledge with no interface possibility between them (Krashen 1981, 1985).[14, 15]

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[12] As noted by Leow and Donatelli (2017: 189), although ideas about innate mental processes had existed before, it was the work of Krashen that "boosted" theoretical and empirical interest in the role of awareness in the field of SLA.

[13] Hulstijn (2015: 28) emphasizes that the basic distinction between acquisition and learning, or implicit and explicit learning, is still considered to be a plausible claim within contemporary views on SLA.

[14] This position was also voiced by other researchers (Hulstijn 2002; Paradis 1994). According to Paradis (1994: 394), "metalinguistic knowledge formally learned in school is not integrated into linguistic competence and does not become available for automatic use."

[15] The strong non-interface position maintained by Krashen has been a debated issue, and the proponents of the strong and the weak interface positions (R. Ellis 2005a, 2008; N. Ellis 2005) assume it to be too rigid. Marton (1994: 57-58) argues that in instructional L2 settings, where learners almost exclusively rely on formal learning in their L2 development, an assumption that learned knowledge is not useful in language production is simply not viable.

It can also be seen from the quotation provided above that in Krashen's view, L2 and L1 acquisition are very similar, hence, in an appropriate environment, that is, with sufficient *language input*, both L1 and L2 acquisition will be triggered. The optimal input is 'comprehensible' and 'roughly-tuned,' constituted by "language that is a little beyond" the current level of a learner's interlanguage (Krashen 1981: 126). Therefore, 'simple codes,' in the form of teacher-talk, interlanguage-talk and foreigner-talk perform similar functions in L2 contexts as caretaker speech does in the context of L1 acquisition, providing appropriate input to stimulate subconscious acquisition. This is the essence of the *Input Hypothesis* (Krashen 1981: 128). Discussing optimal conditions for acquisition, Krashen stresses that apart from exposure to comprehensible input at the i+1 level, openness to it is vital. According to the *Affective Filter Hypothesis* a learner can experience an 'affective filter,' which is a 'mental block' hindering or impeding acquisition. Such a filter is made up of negative affective factors, such as anxiety, fear of failure, or a lack of motivation (Krashen 1985: 3).

Krashen's theory has been highly influential in that it initiated discussions on the role of conscious and unconscious processing in SLA and stimulated extensive research in this area and the emergence of other theoretical accounts of SLA. Schmidt's (1990, 2001) ***Noticing Hypothesis***, according to many researchers (e.g. Dörnyei 2009; Leow 2013, 2015a; Yoshioka, Frota and Bergsleithner 2013; Philp 2013; J. N. Williams 2013), was the first psychology-based SLA theory addressing the role of consciousness in L2 learning that has greatly contributed to the current understanding of key SLA processes.

Schmidt (2010: 722-723) notes that his interest in the role of consciousness in SLA, leading to the formulation of the Noticing Hypothesis, was directly triggered by two case studies he conducted in the 1980s, at a time when conscious learning and explicit teaching were not favored. One of them (Schmidt 1983) was an observational study of Wes, a Japanese learner of L2 English, who was a successful learner in terms of his communicative ability, but lacked morphosyntactic competence. This study led Schmidt to hypothesize that perhaps Wes did not *notice* the morphosyntactic features (e.g. prepositions, plurals, articles, tenses) in the input he heard in his interlocutors' production, and this idea sparked Schmidt's interest in the role of noticing in L2 learning. This interest was further nurtured by the other case study, which was a diary study based on his

own experience of learning L2 Portuguese (Schmidt and Frota 1986). Data were collected through recordings of his interactions with a native speaker of Portuguese and a journal in which he documented his learning progress. The findings indicated that he only used the forms that he had noticed in the input he had received, while those forms which had not been consciously noticed in input were not learned. An analysis of the recordings and the diary entries revealed that although some structures had been frequently encountered in the input, they were internalized only upon conscious noticing of them. Both studies underscored the relevance of *attending to* and *noticing formal features* in the input if they are to be acquired, and inspired Schmidt to do extensive reading on cognitive psychology and conclude that most theoretical and didactic proposals aimed at adult learners at the time (in the 1980s) placed too much emphasis on unconscious processes in L2 development (Yoshioka, Frota and Bergsleithner 2013: 7).

In this way, the study findings led to the formulation of the *Noticing Hypothesis*, originally formulated as follows: "intake is that part of the input that the learner notices" (Schmidt 1990: 139). Because, in its original form, the Noticing Hypothesis is "the claim that a learner must attend to and notice linguistic features of the input that they are exposed to if those forms are to become intake for learning" (Schmidt 2010: 724), it can be concluded that Schmidt (1990, 1993, 1994, 1995) strongly emphasizes the role of consciousness in the process of L2 learning, and, as stated by Leow (2001: 118), in this theory, noticing seems to embrace attention and awareness. Consciousness, in the sense of awareness of specific forms in the input at the level of noticing, is necessary for language learning to take place. In other words, learners must first consciously notice (that is, demonstrate a conscious apprehension and awareness of some particular form in the input) before any subsequent processing of that form can take place. Thus, according to Schmidt (1993: 209), noticing is "the necessary and sufficient condition for the conversion of input to intake."

It is worth reminding the reader that noticing, in Schmidt's view, needs to be differentiated from conscious understanding of a rule, which denotes a higher level of awareness, and which predisposes a learner to focus on a general principle or pattern. Thus, the Noticing Hypothesis does not refer to understanding or any other higher level of processing, and is based on the notion of noticing referring to "surface level phenomena" (Schmidt 1995: 29). Leow (2013: 12) explains that according to this

theory, "to learn any linguistic feature of the L2, for example, sounds, words, grammar, pragmatics, etc., this feature in the L2 input must be noticed (…), even though they [learners] may lack understanding of the underlying rule associated with this linguistic feature." This relatively low level of consciousness at the level of noticing is thus a necessary condition for a relatively basic kind of learning, such as item learning (Schmidt 1995: 29).[16]

R. Ellis (2013: 62) clarifies this point by stating that noticing in this sense can, but does not necessarily have to, lead to the acquisition of the form. The form can also be noticed and forgotten, or, as a result of noticing, a change may be introduced to the learner's long-term memory system, depending on how frequently the form is noticed. In this way, "[n]oticing is therefore the first step in language building, not the end of the process" (Schmidt 2001: 31). Mitchell, Myles and Marsden (2013: 147) point out that it is possible that noticing contributes to the *initial encoding* of a language item in memory, but later unconscious processing can be involved in its subsequent processing, such as forming the form-meaning mapping or reorganizing the system.

The theory derives from premises of cognitive science, which stresses the role of *attentional processes* in learning. Importantly, Philp (2013: 464) notes that "noticing is not simply global," and attention needs to be paid specifically to those properties of features in input which are to be learned. Attentional resources are limited and subject to control by learners, who can consciously choose what they want to pay attention to. Similarly, Izumi (2013: 26-27) stresses that what needs to be consciously registered is how the form is used in the context provided by input, that is, the "form-meaning-function relationships." Noticing the superficial features of a form can result in converting these features to intake, but if any relationships between forms and meanings are to be learned, they need to be specifically noticed.[17]

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[16] As maintained by Schmidt (2001: 31), noticing a language form does not consist in noticing rules or regularities, but what is important is noticing exemplars of rules.

[17] For example, if learners' attention is drawn to verb conjugations (e.g. I am, you are, etc.) without a simultaneous focus on the meaning of these grammatical forms, the learners may not notice the meaning dimension and, as a result, not use these forms in communication. Another example concerns a situation in which a form denotes several functions, but only the one or the ones of them noticed by a learner can be integrated into intake (Izumi 2013: 27).

Schmidt (1995: 45) formulates the following set of suggestions for language learners concerning what they can do in order to enhance the optimal chances to properly notice language features and benefit from the opportunity to convert them into intake:

- Pay attention to input.
- Pay particular attention to whatever aspects of the input (phonology, morphology, pragmatics, discourse, etc.) that you are concerned to learn. Nothing comes free.
- Look for clues as to why target language speakers say what they say. Compare what you say with what target language speakers say in a similar context. Build and test hypotheses when you can.
- If you cannot find a general principle to explain how something works, concentrate on noticing how specific instances are used in specific contexts.

As noticed by researchers (e.g. R. Ellis and Mifka-Profozic 2013: 62; Leow 2013: 12), Schmidt has modified the Noticing Hypothesis over time. The initial version (Schmidt 1990, 1995) claimed that no learning is possible without noticing. Later, however, Schmidt (2001, 2010) revised this position, admitting that some subliminal learning could be possible. Moreover, he presented a revised stance on *implicit learning*, stating that it is possible: "[b]oth implicit and explicit learning surely exist, and they probably interact. Implicit learning (learning without awareness) is shown by numerous demonstrations that the result of allocating attention to input results in more learning than can be reported verbally by learners" (Schmidt 2001: 4). Another, perhaps the most important revision to the Noticing Hypothesis concerns the function of noticing. While in the original version of the theory noticing was a necessary condition for converting input into intake, in the more recent version, *degrees of noticing* are assumed to be linked to enhanced learning. Therefore, noticing is not a crucial condition, but a facilitative factor in learning, and the more noticing there is in the learning process, the more learning takes place. The most fundamental claim remained the same: "for all practical purposes, attention is necessary for all aspects of learning" (Schmidt 2001: 4).

Within the Noticing Hypothesis, apart from the concept of noticing in the sense of paying focal attention to examples of features of structures in the input, Schmidt (1994) distinguished another kind of noticing, namely *noticing the gap* between one's interlanguage and the target language. This

phenomenon involves conducting cognitive comparisons and detecting differences between one's output and the input they receive from other L2 users (Schmidt 2010: 275).[18] Izumi (2013: 27) illustrates the noticing the gap principle with an example of a learner who notices the word "should" in a statement containing a hypothetical condition ("I should have been more careful") made by a native speaker of English. The learner then uses the word "should" without the past participle until she hears a recast addressed at her by another speaker ("I should ask you." "Yeah, you should have asked me.") and notices the gap between her own production and the input in the correction. This is the basis for the acquisition of the form.

Although the Noticing Hypothesis has been highly valued and appreciated by many SLA researchers, it has also received criticism (Paradis 2009; Truscott 1998, 2015; Truscott and Sharwood Smith 2011). One of the main criticisms (e.g. Truscott 2015: 140-141) concerns the fact that certain specifications are missing in Schmidt's theory, for example, a specification of whether learners should be aware of the form or of the task, as these are two different things. Another criticism is connected with whether learners need to be aware of the input or of the forms in the input. This clarification is absent in Schmidt's hypothesis, and it makes a considerable difference. If a learner is not aware of the input, they probably are not conscious at all, and it is obvious that awareness of input is a necessity. Furthermore, as noted by Leow (2015a: 72-73), the notion of intake is not fully specified in Schmidt's theory, as it does not provide a sufficient account of whether all intake gets further internalized. However, despite this criticism, many researchers (Leow 2015a: 72; Philp 2013: 466, and others) stress that the Noticing Hypothesis has been among the most influential theories in the field of SLA, underlying numerous theoretical perspectives and stimulating research strands on form-focused instruction, task-based language learning, input enhancement, interaction-driven SLA, as well as other instruction options and other areas related to L2 learning and teaching.

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[18] The concept was first introduced by Schmidt and Frota (1986) in an analysis of the case study investigating Schmidt's own experience of learning L2 Portuguese. In his diary, he recorded situations when he did not notice the forms in his own production that were corrected as erroneous by his interlocutors and, subsequently, did not internalize the corrections. Only when he noticed a gap between the forms produced by himself and the ones provided by more competent speakers, did he acquire these forms.

VanPatten's (1996, 2002) ***Input Processing*** (IP) model is another theory drawing on work in cognitive psychology which explains the role and functioning of input from the perspective of attentional processes. The main assumption of the IP model is that forming *form-meaning connections* is the basis for L2 acquisition, and that in this process L2 learners tend to prioritize meaning over form in the input. It is stressed that L2 learners always attend to the meaning of utterances in L2 input, and focus on their form only if this is needed for understanding the meaning (VanPatten 1996, 2002, 2004, 2007, 2015).[19]

The primacy of meaning over form in processing information available in the input data implies that formal aspects of the input are only processed if they are crucial for understanding meaning and if the learner has the cognitive resources available to pay attention to them. These main assumptions are expressed in a series of principles which explain how exactly learners proceed with working out meaning and form from input. The set of principles, following VanPatten's recent publications (2007, 2012, 2015), is presented in Table 2.

Table 2. The principles of the Input Processing model (VanPatten 2007, 2012, 2015).

Principles	Explanations
The Primacy of Content Words Principle	Learners process content words in the input before anything else.
The Lexical Preference Principle	Learners will process lexical items for meaning before grammatical forms when both encode the same semantic information.
(Revised) Lexical Preference Principle	If grammatical forms express a meaning that can also be encoded lexically (i.e., the grammatical marker is redundant), then learners will not initially process those grammatical forms until they have lexical forms to which they can match them.
The Preference for Non-redundancy Principle	Learners are more likely to process non-redundant meaningful grammatical markers before they process redundant meaningful markers.

[19] Skehan (1998: 47) makes a comment that a focus on form and attentional control during comprehension distinguish the processing-based approach to input from comprehension-based ones, which are concerned primarily with extracting meaning with little or no focus on formal properties of the L2.

The Meaning before Non-meaning Principle	Learners are more likely to process meaningful grammatical markers before non-meaningful grammatical markers.
The First Noun Principle	Learners tend to process the first noun or pronoun they encounter in a sentence as the subject.
The L1 Transfer Principle	Learners begin acquisition with L1 parsing procedures.
The Event Probability Principle	Learners may rely on event probabilities, where possible, instead of the First Noun Principle to interpret sentences.
The Lexical Semantics Principle	Learners may rely on lexical semantics, where possible, instead of the First Noun Principle (or an L1 parsing procedure) to interpret sentences.
The Contextual Constraint Principle	Learners may rely less on the First Noun Principle (or L1 transfer) if preceding context constrains the possible interpretation of a clause or sentence.
The Sentence Location Principle	Learners tend to process items in sentence initial position before those in final position and those in medial position.

As can be deduced from Table 2, the processing of input data proceeds along very logical and commonsensical paths: content words are processed before function words, and meaningful chunks before non-meaningful chunks, because of the primacy of seeking semantic information in initial processing. Salience and redundancy are therefore important concepts here; redundant markers do not attract learners' attention, while items in initial position, as most salient, are processed first. Moreover, comprehension is accompanied and aided by parsing, which is "a microsecond-by-microsecond computation of the syntactic structure" (VanPatten 2007: 120) of input, on the basis of which information about the grammatical relationships among words is inferred. Either universal or L1-based parsing strategies can be applied (VanPatten 2007: 120-121). VanPatten, Williams and Root (2004: 11) note that reliance on L1 parsing procedures, for example by beginning L2 learners, who tend to automatically employ the L1 in L2 comprehension, can have negative consequences for processing forms in L2 input. However, parsing is influenced by other factors as well, among them learners' knowledge of lexical semantics in the interpretation of the meaning of sentences. For example, this can involve knowledge of how the meaning of verbs influences the

selection of a proceeding noun in terms of its animacy, etc. (VanPatten 2007: 123). Moreover, contextual clues play a role in the parsing and interpretation of sentences, and the order of items within a sentence influences how they are processed. Importantly, VanPatten (2015: 122) highlights that in the IP model, "the term 'process' means that learners link meaning and form, either locally (words, morphology) or at the sentence level," and that "processing is not an equivalent term for 'noticing'."

VanPatten (2002, 2004) makes the point that input processed online, in comprehension, can be available for subsequent processing and may, through restructuring, become part of the developing L2 system. The higher the communicative value of the input, the higher its chances of being available for further processing as intake. Following this, VanPatten (2004: 7) defines intake as "the subset of input that has been processed in working memory (i.e., possible incorporation into the developing system)." Subsequent exposure to input can also strengthen the initially weak or partial form-meaning connections at the level of intake, or, conversely, its absence can make it disappear (VanPatten, Williams and Root 2004: 8). However, processes such as intake accommodation and restructuring are separate from IP (VanPatten 2002: 762).

Addressing the *explicit/implicit* debate in SLA, VanPatten (2015: 122) contends that IP does not make a clear point on whether acquisition processes in adults involve either explicit or implicit mechanisms. He admits, however, that *implicit processing* seems to be much more natural in comprehension, because explicit deliberations about the forms of items could impede and distract natural comprehension processes. Doubts can also be raised about the usefulness of explicit information in online language processing.

Both Leow (2015a: 86) and VanPatten (2015: 130) conclude that the IP model has stimulated considerable debates among SLA specialists on the role of input in L2 learning, but also on its possible pedagogical implications. Many researchers (e.g. Cho and Reinders 2013) point out that because of the huge demands posed by online comprehension of natural input (either in a formal educational or a naturalistic setting), during which learners' attention must constantly shift from meaning to form, it seems necessary to make forms in the input more salient for them. Otherwise, they may never have enough capacity to process formal aspects of the L2. In view of this, VanPatten (2004) suggests a solution in the form of a pedagogical intervention called processing instruction (PI), the

aim of which is to facilitate the processing of input by making some of its elements, especially the ones that may not be attended to in the course of focusing on meaning, more noticeable. Processing instruction as a didactic option within form-focused instruction will be discussed in Chapter 2.

1.3.2. Theories focusing on input and intake processing

McLaughlin's (1987) ***Information-Processing Theory*** belongs to the information-processing strand of cognitive theories, which "investigate how different memory stores (…) deal with new L2 information, and how this information is automatized and restructured through repeated activation" (Myles 2014: 61). One of the central tenets of the information-processing approach, as explained by McLaughlin (1987: 134), is that the acquisition of language skills "requires the assessment and coordination of information from a multitude of perceptual, cognitive, and social domains." Dakowska (2001: 20) defines information as the most basic meaningful unit, which can be perceived, processed, encoded, organized, stored in memory and interpreted. In view of this, the main focus of the cognitive theory is how the human brain processes and learns new information and how mental processes are involved in the acquisition and application of knowledge. McLaughlin (1990b: 113) refers to these processes as 'mental events.' Another focus of the cognitive approach is the 'mental structure,' within which human knowledge and experience is organized.

The theory is based on an assumption of human *limited capacity* processors, which means that there are limitations to information processing. One of them is connected with the role of *selective attention* paid to input, and the role of attention in transferring information into *focal awareness*. Due to the processing capacity limitations, an individual is not capable of attending to all information in the input or in their own long-term memory store. Since only some of this information can be the object of focal attention, the rest of it will be attended to only peripherally. This limitation is closely connected with the demands of a given task. Another limitation is *information-processing ability*, which depends on different factors, some connected with the knowledge and expectations of the perceiver of the input (McLaughlin, Rossman and McLeod 1983: 137).

Information processing involves the activation of memory nodes in two possible ways, *automatic* and *controlled*. This is connected with the

above-mentioned crucial variable, namely the degree of attention involved, which is responsible for the efficiency and speed of processing. In automatic processing, certain nodes are activated with relatively little processing energy, as a learned response established through consistently repeated input-activation patterns is involved (McLaughlin 1987: 134). *Automatic* processing is based on learned responses established through multiple rehearsals of a relatively stable set of associated connections. As stressed by McLaughlin (1990b: 115), repetition and practicing, which lead to the emergence of well-learned, automatic procedures, are the key to the development of complex cognitive skills. Once developed, an automatic process is rapid and is very difficult to change. McLaughlin, Rossman and McLeod (1983: 139-140) explain that the other kind of processing, *controlled***,** is not based on a learned response, but on a sequential activation of nodes in memory, and it involves at least a certain amount of attention; therefore, it is impossible to focus on too many stimuli simultaneously without interference. This makes this kind of processing more capacity-limited and time-consuming. On the other hand, controlled processes are easier to change and apply to new situations. The role of controlled processes in learning is crucial. They regulate the transfer of information to long-term memory, that is, they are responsible for the initial stages of acquisition of complex skills before they become automatized. As automaticity develops, controlled processing is gradually given up and attentional limitations decrease. In L2 learning, the shift from controlled to automatic processing may involve an initial assimilation of rules, with a focal attention to task demands, followed by their application. However, such processing may also consist in implicit learning, where learners build up analogies on the basis of examples of language use, not formal rules.[20]

The distinction between *declarative knowledge* (knowledge 'that' or 'about') and *procedural knowledge* (knowledge 'how'), introduced by Anderson (1983) as a basic tenet of his Active Control of Thought (ACT) Model, is a conception parallel to a certain extent to McLaughlin's controlled versus automatic processing in the sense that it relies on the as-

[20] How exactly learners allocate their attention in processing L2 information depends on both an individual's preferences and the demands of a learning situation, such as the complexity of a task. McLaughlin (1987: 135) adds that if a task comprises a number of components, they are attended to in a controlled manner sequentially, thus alleviating the processing demands and making the task execution gradually automatized.

sumption that declarative, factual knowledge is transformed into procedural, practice-oriented knowledge in order for learning to take place. In this model, learning proceeds along three stages. The first one, 'declarative,' involves storing information with no active use, in the middle one, 'associative,' the learner applies proceduralization strategies to activate declarative knowledge, and finally, in the 'autonomous' stage, when knowledge begins to be automatized, production is initiated on the basis of previously learned items and rules.[21]

Apart from the key concepts of controlled and automatic processing, McLaughlin's theory also introduces the concept of *restructuring* to the discussion of information processing in the context of L2 learning. Restructuring involves a "discontinuous, or *qualitative*, change (…) in development. Each new stage constitutes a new internal organization and not merely the addition of new structural elements" (McLaughlin 1990b: 117). The qualitative changes take place in the internal organization of a learner's mental structures as L2 development proceeds from one stage to another, and from controlled to automatic processing. Within syntactic development, restructuring can be understood as progressing from non-systematic to systematic variations in the process of form-meaning mappings. The process is characterized by forming and testing hypotheses, and, hence, temporary regressions in performance (McLaughlin 1990b: 121). Leow (2015a: 79) compares the effects of restructuring to the 'U-shaped phenomenon,' where an initial performance, based on chunk learning without any traces of systematic learning, is correct, then there is a sudden decrease in correctness due to learning processes such as L1 transfer or generalization, followed by an increase in accuracy caused by further mental processing, exposure and feedback.

Importantly, McLaughlin, Rossman and McLeod (1983: 140) make the point that *conscious awareness* is not the distinguishing feature in the controlled/automatic distinction, as both modes of processing can be either conscious or not. However, in most cases, controlled processing, being slower and more deliberate, requires more focal attention, while automatic processing is "usually, but not necessarily, hidden from conscious perception" (McLaughlin, Rossman and McLeod 1983: 140). This im-

[21] In this sense, R. Ellis (2008: 427) sees the information-processing theory as providing "a basis for combining the implicit/explicit distinction with the declarative/procedural one."

portant feature has also been deliberated upon by other researchers. Frota and Bergsleithner (2013) stress that attention and consciousness are at the core of most information processing theories, as consciousness is closely associated with related constructs, such as attention, control processing, and working memory capacity.[22] Schmidt (1990: 136) notes that information processing models relate consciousness to attention, the control process that transfers information into focal awareness. On this assumption, most models of control and automatic processing identify control with consciousness. Posner and Snyder (1975: 82), for example, contrasted "automatic activation processes which are solely the result of past learning" with "processes which are under current conscious control."

N. Ellis' (2007a) ***Cognitive-Associative CREED*** is another theory which addresses the input- and intake-processing stages in L2 acquisition. It is a cognitive framework rooted within cognitive psychology, especially the connectionist perspective on learning. The acronym CREED stands for the main characteristics of SLA as the model describes it: Construction-based, Rational, Exemplar-driven, Emergent, and Dialectic. The primary concern of this framework is the interrelation of implicit and explicit learning and knowledge in SLA, with such central concepts as noticing, attention, unconscious frequency-based abstractions and conscious processing of linguistic information. The theory is an example of 'usage-based' approaches toward SLA, since it assumes a crucial role for the input learners encounter in their L2 use, and explains the cognitive mechanisms that learners use in inducing L2 rules from input (N. Ellis and Wulff 2015: 75).

The 'construction-based' nature of SLA implies that 'constructions' are the main units of acquisition. Constructions are broad units consisting of *form-meaning mappings* which constitute language knowledge in a learner's mind; they can be syllables, lexical items, syntactic structures, pragmatic markers, chunks of language, or any other type of linguistic units. Importantly, constructions are conceptualized and acquired by remembering utterances encountered in communicative situations throughout one's life, and by *inducing the regularities* in these utterances on the basis of the frequency of their appearance. On the basis of experience,

[22] Schmidt (1990: 135), discussing the role of attention and consciousness in information processing theories, indicates that since their main postulate is that humans are limited capacity processors of information, the notion of consciousness in these theories is inevitably associated in one way or another with this notion of a limited capacity system.

learners become sensitive to the probability of occurrence of particular constructions, and are more likely to interpret the more probable (high-frequency) ones unconsciously.[23]

Language users are 'rational' in processing "the best mental model possible, given their linguistic experience to date" (N. Ellis 2007a: 80). This means that, in both comprehension and production, they unconsciously choose the *most relevant* constructions, which largely facilitates their processing of language, because these language representation systems allow them to optimally predict what constructions will be needed in ongoing communicative discourse. The frequency of the occurrence of cues, the recency of their occurrence, and the context in which they occur are features that help learners rationally process linguistic constructions. N. Ellis (2007a: 80) writes, "[l]anguage learning is thus an intuitive statistical learning problem, one that involves the associative learning of representations that reflect the probabilities of occurrence of form-function mappings."

Since experience in the form of the input a learner is exposed to and the output they produce in communicative situations, being a crucial basis for the creation and memorization of constructions, cannot be responsible for acquiring every single item, N. Ellis (2007a: 80) explains that the acquisition of patterns and regularities derived from these constructions is necessarily 'exemplar-driven.' This feature of acquisition presumes that *generalizations* are created from "frequency-based abstractions of regularities from similar constructions." Central tendencies and pattern regularities are more readily learned, because there are clear form-meaning mappings behind them (which is an important tenet of associative learning), while irregularities are processed more slowly. Learners' *attention* to tokens in the input thus leads to the development of a representation of types that underlie them. Repeated attention to tokens is important in the creation of grammatical categories in learners' minds. N. Ellis and Wulff (2015: 76) explain that exemplar-based learning is to a large extent *implicit*; a learner's mind processes various characteristics of the encountered exemplars and interprets them without conscious awareness.

Language is undoubtedly a complex system, involving the interaction of several types of constructions. These interactions develop over time,

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[23] The more frequent the occurrence and registration of a clue, the stronger the form-meaning associations are created in a learner's mind, therefore, the more salient forms with greater functional importance lead to enhanced learning from experience.

leading to the development of certain systematicities, or rules; therefore it can be said that these rules have an *emergent* character: they emerge "in complex, sometimes surprising, dynamic, adaptive ways (…) as learners' perceptual, cognitive, motor, and social functions induce structure" (N. Ellis 2007a: 82). The emergence of L2 structure is thus different in each individual, and, among other factors, the L1 is a powerful factor influencing the acquisition of an L2, because the learning mechanism has already been prepared to process L1 constructions throughout the years of prior experience of L1 use, creating frequency-based abstractions on the basis of the L1, and recognizing patterns behind L1 constructions. N. Ellis (2017: 119) clarifies that 'learned attention' to language is optimized for the L1, which results in the automatic processing of the L2 in non-optimal ways. Therefore, the phenomenon of L1-L2 transfer can be explained in terms of blocking or *overshadowing* L2 constructions, especially those with low salience and high redundancy, because the learner's mind has been tuned to process L1 cues.

Finally, SLA is *dialectic*, which underlines the role of *social interactions* in the creation of ultimate mental representations of the learned constructions. N. Ellis (2007a: 84) acknowledges that naturalistic usage-based acquisition often does not bring the desired level of attainment, therefore, a pedagogic intervention, which focuses the learner's attention on 'additional evidence,' is often necessary. Such an intervention, provided by a teacher or another more competent interlocutor, "recruits the learner's conscious processing" and involves some kind of "feedback, either linguistic, pragmatic, or metalinguistic, that allows socially scaffolded development." Summing up how the framework sees the interplay of implicit and explicit learning, it needs to be stressed that for N. Ellis, although the acquisition of L2 grammar is a primarily implicit process, based on the emergence of form-function associations from communicative language use, it requires the support from *explicit learning mechanisms*. N. Ellis (2017: 113) underscores this in the following words:

> The various roles of consciousness in second language acquisition (SLA) include: the learners noticing negative evidence; their attending to language form, their perception focused by social scaffolding or explicit instruction; their voluntary use of pedagogical grammatical descriptions and analogical reasoning; their reflective induction of metalinguistic insights about language; and their consciously guided practice which results, eventually, in unconscious, automatized skill.

Consciousness, then, constitutes the *interface* between implicit and explicit linguistic knowledge, and uses the neural system to broadcast the results of thinking to all the varied sources of unconscious knowledge. This interface is dynamic and transient, but has a lasting effect on implicit knowledge (N. Ellis 2017: 120). The interactions between implicit and explicit learning experiences are a core feature in usage-based approaches, and they lead to the emergence of learners' "language systematicity" (N. Ellis and Wulff 2015: 89).

1.3.3. A theory focusing on output processing

Only one SLA theory seems to fit into the category of positions on the processing of output, namely the ***Output Hypothesis*** by Swain (1985, 1995). On the basis of her research conducted in the Canadian immersion context, Swain (1985) concluded that although "comprehensible input (…) may be essential to the acquisition of a second language, it is not enough to ensure that the outcome will be nativelike performance" (Swain 1985: 236). Raising doubts about the sufficiency of modified input in triggering acquisition, she further goes on to explain that the relevance of interactional exchanges is likely to be related equally to comprehensible input and *comprehensible output*. She thus formulated the Output Hypothesis which claims that "the act of producing language (speaking or writing) constitutes, under certain circumstances, part of the process of second language learning" (Swain 2003: 471). Importantly, the hypothesis postulates that not just any output is equally beneficial for acquisition. Swain (1985: 248-249) explains that merely "getting one's message across," which can involve ungrammatical and sociolinguistically inappropriate structures, is not conducive to L2 development. Instead, learners need to be "pushed toward the delivery of a message that is not only conveyed, but that is conveyed precisely, coherently, and appropriately." This kind of language production is referred to as *pushed output*.

Swain (1995, 2003) suggests that comprehensible output performs three important functions in L2 production and learning. One of them is the *noticing/triggering* function, also referred to as a "consciousness-raising role" (Swain 1995: 128). It is related to learners' discovering (or noticing) that they lack the linguistic resources necessary to convey an intended meaning. This discovery is made as a result of an attempt to communicate. Learners *consciously* realize what they do not know; possibly,

their *attention* is drawn to some relevant features in the input in search of the forms needed for accurate and precise language production. In other words, this function of pushed output is connected with noticing a gap in learners' own interlanguage system (Kim 2017: 127). As stated by Swain (2003: 474), the awareness of the necessary linguistic resources activates certain *cognitive processes*, generating new L2 knowledge or consolidating what is already known to them. Another function served by output is that of *hypothesis testing.* Producing output can, in some cases, be treated by learners as a 'trial run' (Swain 2003: 476), with the intention of verifying their hypothesis about the correctness of a form to express an intended meaning, and, to this end, their production can contain conversational strategies such as confirmation requests or checks. Learners often modify their production semantically or morphologically as a result of feedback clues from their interlocutors. Importantly, Swain (2003: 477) claims that such modified (or "reprocessed") output contributes to acquisition, possibly due to the syntactic priming effects that it produces for subsequent output. The third function of pushed output is a *metalinguistic function*, consisting in stimulating reflection about language use. Swain (1995: 132) explains that by providing a hypothesis in the form of an utterance, learners at the same time reflect on it, which, in turn, can help them control their own language production and internalize the linguistic forms. This reflective function can be particularly pertinent in collaborative dialog tasks in which learners negotiate language in a problem-solving task. This can be, for example, a writing task in which learners arrive at the best ways to express an intended meaning (Swain 2003: 478).

1.3.4. Theories focusing on all stages of learning (from input to output)

Long's (1981, 1996) ***Interaction Hypothesis*** is an example of the interactionist strand in SLA, which focuses on the social context of language use and language learning and its role in influencing L2 competence. Initially, Long (1981) based his hypothesis on Krashen's Input Hypothesis, confirming the crucial function of comprehensible input in L2 acquisition; however, with the reservation that it is *interactional modifications* that make the input comprehensible to the learner and, as a result, facilitative to L2 development. Thus, the early version of the hypothesis stated that "participation in conversation with NS [native speakers], made possible

through modification of interaction, is the necessary and sufficient condition for SLA" (Long 1981: 275).

Apart from linguistic modifications which aid the comprehension of input, the negotiation of the interaction itself takes place in response to communication difficulties (Pica 1992; Pica and Doughty 1985). *Negotiated interaction* positively influences L2 learning in two ways: by providing input at a level slightly beyond a learner's current L2 level and thus facilitating its comprehension, and by stimulating a learner's noticing of formal features of the L2, such as syntax, morphology, and phonology (Pica 1992). This line of reasoning is reflected in Long's updated version of the Interaction Hypothesis, which was formulated in the following way: "*negotiation for meaning,* and especially negotiation work that triggers *interactional* adjustments by the NS or more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways" (original emphasis) (Long 1996: 451-452). R. Ellis (2008: 254-255) suggests that this later formulation of the hypothesis provides a specific account of the ways in which interaction influences acquisition, highlighting the role of attentional internal mechanisms. Moreover, he explains that the comprehensible input that learners receive through interactional modifications serves an important function of providing *positive evidence* of acceptable structures as well as *negative evidence* in the form of negative feedback on their own utterances. In this way, the Interaction Hypothesis highlights the relevance of input, learner internal processing, and output in promoting L2 acquisition.

Leow (2015a: 173-174) notes that the *interactionist approach*, initiated by Hatch's (1978) and Long's (1981) proposals, continues to thrive, stimulating insightful theoretical and empirical investigations. The role of attention, noticing, and awareness in focusing on formal L2 features in the input and learner's own interlanguage production is within the scope of such investigations.

Skill Acquisition Theory (DeKeyser 1997, 2007), another theory which makes references to all stages of learning, is based on the assumption that all skill learning within any domain, whether psychomotor or cognitive, follows the same pattern of development, from initial knowledge representation to advanced, fluent, skill-like behavior. In each domain, including SLA, the acquisition of skills proceeds according to roughly the same patterns and principles, along the cognitive-associative-

autonomous, or *declarative-procedural-automatic*, or presentation-practice-production route, with the precise terminology used depending on a given theory (DeKeyser 2007: 98).

Each of the three stages of development is characterized by distinctive features concerning a learner's knowledge and the use of this knowledge. The initial stage typically involves *learning about* a skill without using it, and the resulting knowledge is of a declarative type. The process of acquisition at this stage is based on, for example, observations of others and an analysis of others' skill performance, or a direct transmission of knowledge, or a combination of these two. The following stage consists in "turning declarative knowledge into procedural knowledge," 'knowledge that' into 'knowledge how' (DeKeyser 2007: 98). Depending on the amount and availability of declarative knowledge, this process of *proceduralization* can be relatively fast and easy.[24] The third and final stage of skill development is characterized by fluent, spontaneous behavior, based on sufficiently "robust and fine-tuned" knowledge (DeKeyser 2007: 98). However, the transition from procedural knowledge to this final stage typically takes considerable amounts of time and practice, which gradually leads to the decreased reaction time, error rate and attention volume required for effective task execution. Through this practice, gradual automatization of knowledge takes place. An important point to make here is that the automatized knowledge at the final stages of learning is much more specific than at initial stages. As a result, this knowledge does not transfer easily, even to similar tasks. For example, either comprehension or production skills will be developed as a result of practicing one kind of skill. DeKeyser (1997: 213) admits that "[t]his is contrary to the idea of linguistic competence acquired through comprehension being equally available for production and comprehension."

DeKeyser (2007: 99) stresses that "the power law of learning," which indicates that increased practice leads to decreased reaction time and error rate, is an essential concept in the Skill Acquisition Theory. The decreased reaction times and error rates, coordinated with time devoted to practice, can be illustrated on learning curves, which take a similar form for different kinds of skills. This curve is characterized by a sharp decline at the beginning of the practice sequence, and a gradual lowering as practice proceeds

[24] The main advantage of procedural over declarative knowledge is that it smoothly and rapidly executes certain kinds of behavior on the basis of readily available relevant chunks of information, contrary to declarative knowledge, which requires more laborious retrieval of information from memory in task completion (DeKeyser 2007: 98).

over time. The fact that the same patterns are observed in various domains of skill learning points to "some fundamental learning mechanisms." In other words, more practice apparently leads to some qualitative change in the cognitive processes involved in the retrieval of knowledge and in the performance of the same tasks. This change can possibly be explained, as suggested by DeKeyser (2007: 99), by the quite rapid shift from declarative to procedural knowledge, and a much slower transition from the procedural to the automatic stage (i.e. the *automatization* of knowledge).[25]

The processes of knowledge proceduralization and automatization need certain conditions to be effectively fostered. These conditions include, among others, sufficient declarative knowledge, and appropriate tasks which stimulate its use. In language learning situations, this can mean that a provision of abstract rules together with specific examples of their use can be necessary to trigger the process of proceduralization (DeKeyser 2007: 100). Following this, Ortega (2015: 264) explains that *explicit* grammar explanations which make learners *consciously* process the new knowledge and understand it well are an important initial step in instruction according to the principles of Skill Acquisition Theory. The following step involves ample "deliberate practice" aiming to help learners apply the declarative knowledge of rules in the use of further examples. Sequencing conscious learning of explicit information and careful selection of practice activities is thus necessary to achieve high levels of L2 competence.[26]

Although the role of explicit knowledge, incorporating conscious, attention-driven processing at the initial stages of learning is very important in the theory, DeKeyser (2015: 105) highlights the importance of implicit knowledge and learning as well, strongly arguing that "[t]here can even be 'synergy' between the two types of learning for a particular rule or a distribution of roles between the two when a variety of different rules, patterns, or regularities need to be learned." This makes Skill Acquisition Theory representative of the *strong interface* position, as noted by Mystkowska-Wiertelak and Pawlak (2012: 47).

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[25] Lyster and Sato (2013: 75) clarify, however, that the construct of automaticity, the final stage of the process of automatization, is characterized by more features than just speed: the processing used by automaticity is fast, but also ballistic, unconscious, and effortless; on the other hand, fast processing is not always automatic.

[26] Hence, Benati and Lee (2008: 162) point out that "conscious processing, deliberate learning, and explicit representations of language" are emphasized in Skill Acquisition Theory.

The final proposition to be reviewed here, ***MOGUL (Modular On-line Growth and Use of Language)***, a framework devised by Truscott and Sharwood Smith (2004, 2011), significantly contributes to a discussion of the role of consciousness in SLA, because it addresses such relevant constructs as consciousness, noticing, input, intake, and other consciousness-related notions.[27]

MOGUL thus postulates a modular organization of the language faculty, within which the core system (i.e. the *language module*) contains phonological and syntactic systems, and is linked to two adjacent systems: the *auditory-acoustic* and *articulatory* systems outside the phonological system, and the *conceptual structure*, responsible for the interpretation and encoding of meaning, which lies outside the core syntactic system and includes the semantic and pragmatic dimensions of language. Each of the core systems (phonological and syntactic) contains a store (or a database) of structures, some of which are universal, and some language-specific, and a computational processor that manipulates structure. The two core systems are related by subconscious interface processing, which allows matching (or 'chaining') phonological and syntactic representations, and co-activates the indexed items. Apart from the core, acoustic and conceptual systems, the framework also contains *affective structure* which includes emotional representations and which is linked to perceptual and conceptual items (Sharwood Smith 2008: 9; Truscott and Sharwood Smith 2011: 508-509).

The modality-specific processing systems, which process input from different senses, produce so called perceptual output structures, e.g. auditory and visual structures. Their activity is synchronized through the strong interfaces among them, as a result of which the current state of one system influences the state of others. In this way, attention is focused on a coherent aspect of a stimulus in the surroundings, and "a unified response to whatever is deemed most important at the time" is encouraged.[28]

It is of special importance in the MOGUL framework that the conceptual structures allow conscious introspection, while there is no conscious

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[27] As explained by Leow (2015a: 94), MOGUL is "an interdisciplinary, processing-oriented framework of L2 development" which is based on a modular view of language and a processing component.

[28] As explained by Truscott and Sharwood Smith (2011: 509), the system of perceptual output structures is similar to other systems from other theoretical perspectives, such as Aristotle's common sense, Atkinson and Shiffrin's short-term store (STS), Baddeley's working memory, and Baars's global workspace.

access to what happens within the core system, located in the phonological and syntactic modules. Any processing within the core system, for example an interface between the phonological and syntactic systems, is subconscious.[29] On the other hand, the conceptual structure, which is also linked to perceptual representations based on different senses (hence, there are visual, auditory, olfactory representations, etc.), is open to conscious introspection. Hence, through accessing the sensory/perceptual structure of words and associating them with conceptual structures the learners' own 'metagrammars' can be developed on the basis of their metalinguistic ability available in the conceptual structure. This explains the existence of two systems of grammar in MOGUL: one of them is the impenetrable system that develops through exposure to language input and is beyond conscious control, and the other one develops through conscious processes and can be consciously and deliberately manipulated by learners themselves or by other, external, factors.

The concept of *consciousness* is crucial to MOGUL, and the issue of "which representations become conscious and under what circumstances" is a pertinent one in this framework (Truscott and Sharwood Smith 2011: 512). Truscott (2015b: 417-418) discusses the relevance of consciousness in learning a language within this perspective in relation to seven recurring themes which typically underlie cognitive theories of learning: modularity, activation, the contents of the short-term memory store, executive control, attention, value, and information. *Activation* is the most important of these seven themes with regard to consciousness. The main point here is that the elements that are currently active are within one's consciousness, and this is the basis for the formulation of the 'activation hypothesis,' according to which "[a] representation is conscious if and only if its current activation level is above a given threshold value" (Truscott and Sharwood Smith 2011: 513). The next theme indicates that what is conscious is temporarily held in the *short-term memory* store. The idea that the *executive control* is involved in consciousness is linked to the role of the self as the 'ultimate executive.' Next, *attention* is believed to be the filter which selects certain elements for consciousness. *Value*, the following theme, indicates that the content of one's consciousness is influenced

[29] According to Sharwood Smith (2008: 12), "[t]his explains why attempts to raise the learner's awareness of the phonological structure of a word do not produce any guarantee of phonological development, and, of course, the same goes for the development of syntax."

by what is considered to be important, or valuable, to the learner. Finally, conscious representations include information that is *relevant* to the system, while irrelevant information disappears from consciousness.

Since activation is the most important factor influencing conscious experience, it should be discussed in some more detail here. As was mentioned above, perceptual output structures become easily activated in a synchronized manner, which is of particular relevance for the understanding of consciousness within the MOGUL perspective. Truscott and Sharwood Smith (2011: 513) stress that perceptual sensations readily become the object of consciousness. Affective structures are also characterized by especially high activation levels, and also appear to be central in conscious experience.[30] Therefore, it is possible for learners to be aware of the perceptual and affective systems; with regard to language forms, they can be aware only of the representations of phonological structures. Following this line of reasoning, learners cannot be aware of grammar, as they are not directly aware of conceptual structures; however, these structures can be presented in perceptual form and thus available to conscious processes. Truscott (2015b: 423) further explains that although conceptual representations do not reach sufficiently high activation levels to become open to consciousness, they efficiently influence the activation of perceptual output structures, and are in this way closely associated with perceptual representations. If auditory and verbal structures are strongly activated, their conceptual structure counterparts also become activated.[31]

Truscott (2015b: 425-427) discusses certain practical implications of these theoretical considerations in relation to implicit, explicit, and subliminal learning. *Subliminal learning*, with very limited potential, occurs when input is not consciously perceived by the learner. If the input is consciously heard, implicit or explicit learning can take place. In a situation when exposure to spoken input results in an acoustic structure representation and leads to subsequent processing, *implicit learning* occurs. This additional processing can lead to more perceptual representations, and, possibly, to active conceptual representations. These might, in turn, influence the creation of a

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[30] In Truscott and Sharwood Smith's (2011: 215) opinion, these tenets are true for both general cognitive processing and for learning a language.

[31] For example, subvocally uttered words can activate the underlying concepts in a conceptual structure. This illustrates how "[t]he perceptual representations thus serve in a sense as proxies for their conceptual counterparts" (Truscott 2015a: 124).

corresponding perceptual representation in the form of, for example, "the sound of the words expressing the concept – the phonetic form of 'subject, verb, object' – or images corresponding to them – 'SVO' for example – or perhaps some more idiosyncratic expression of the concept" (Truscott 2015b: 425). Learning that takes place on the basis of such an interplay between conceptual and perceptual processing is *explicit learning*. More specifically, Truscott (2015a, 2015b) suggests that pedagogical interventions such as *consciousness-raising*, especially in the form of input enhancement (written and oral), input flood, or generally, making input more comprehensible to learners, can facilitate learners' perception and contribute to more effective L2 learning (Truscott 2015a: 192).

Recapitulating the theoretical accounts on the role of consciousness at different stages of learning, from input to output, the following points can be made:

- Krashen sees large amounts of naturalistic exposure to L2 input as a necessary factor triggering acquisition, at the same time stressing the role of affective predisposition, and disregarding any role of conscious operations on input.
- Schmidt and VanPatten stress the role of attention at the input-to-intake stage, however, while the noticing (conscious registration) of the target features is crucial in Schmidt's hypothesis, VanPatten stresses the relevance of attentional processes in a meaning-oriented processing of input.
- McLaughlin's theory sees the need for varying degrees of attention to input features and for consciousness in the automatic and controlled processing of input and intake in forming the internal system.
- N. Ellis's Cognitive-Associative CREED posits usage-based, exemplar-driven, largely implicit learning mechanisms, which nevertheless require attention to L2 features and supportive explicit learning mechanisms in the formation of mental representations of the pattern regularities behind the exemplars.
- Swain's Output Hypothesis presupposes a considerable role for conscious processing in L2 development, stressing the value of noticing features in input and of noticing the gap in one's interlanguage; it also sees a role for conscious reflection on linguistic features.

- Long's Interaction Hypothesis posits the important role of noticing through interactional modifications, grammatical and accurate features in input (positive evidence), and gaps or inaccuracies in one's own production (negative evidence from feedback).
- The role of attentional processing and explicit knowledge is prominent in DeKeyser's Skill Acquisition Theory.
- Although the MOGUL framework views L2 acquisition as a primarily implicit process, it also sees a considerable role for consciousness. Consciousness is related, among other things, to the activation levels of particular nodes and to storing certain information in short-term memory.

1.4. Consciousness in SLA: Selected research findings

The role of consciousness and the relationships between conscious and unconscious processes have been controversial and hotly debated issues in SLA research for about three decades now, since the early 1990s.[32] The most frequently addressed research areas have covered the need for conscious processing in learning, mostly realized as verifying the role of *explicit* and *implicit learning*, and the specific processes involved in these types of learning. A more recent strand of research investigating the concept of *unawareness* and its role in L2 learning has brought more data on the internal processes employed by adults during learning tasks. As stated by Leow and Donatelli (2017: 189) in an introduction to their timeline of SLA research on awareness and unawareness, "the multi-faceted nature of awareness is clearly exemplified in concepts that include perception, detection, and noticing, and also in type of learning or learning conditions (implicit, explicit, incidental, subliminal), type of consciousness (…), and type of awareness (…)," which influences the choice of issues to be addressed in an overview of previous research. With a proliferation of studies conducted within these areas of research, this section will contain a review of only a modest selection of them, with the intention of highlighting some relevant recent strands of research on consciousness in SLA. This section will thus focus on studies which have explored the construct

[32] Sharwood Smith (2008: 3) notes that different aspects of consciousness continue to be scrutinized and a number of crucial issues involving the conscious/subconscious distinction in SLA are still unresolved.

of consciousness and other consciousness-related concepts discussed in this chapter, that is, *noticing*, *attention* and *awareness* as variables in research designs. Studies investigating the acquisition of *artificial systems* and *natural language* forms will be reviewed in separate subsections.

1.4.1. Research on consciousness in the acquisition of artificial systems

Robinson (1995b) and Ziori and Pothos (2015) explain that experiments on artificial grammar have been popular since the 1990s (although some studies were conducted as early as the 1960s), and their primary aim is to investigate the relationship between awareness and language learning, including many specific issues, such as the nature and effectiveness of explicit and implicit learning.[33] One clear advantage of laboratory settings, with the use of artificial or semi-artificial grammars, is that they allow for greater control of the learning tasks and contexts. Mitchell, Myles and Marsden (2014: 111) note that such studies have been principally used to investigate implicit learning processes, because explicit learning processes are, at least to a certain degree, likely to take place in classroom settings with natural languages.[34] Ziori and Pathos (2015: 258) explain that the methodological set-up of artificial grammar studies is particularly conducive to testing implicit learning and knowledge, because participants are given no information about the structure of the input and are not aware of their unintentional acquisition processes. Although doubts have been raised about the applicability of the results of artificial grammar studies to natural language learning situations, Ettlinger et al. (2016), after an empirical comparison of performance in artificial language learning tasks and natural language ability, confirmed a relationship between these two research settings.[35]

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[33] In such studies, implicit learning is typically claimed to occur as a result of memorizing examples of letter strings reflecting a pattern, while explicit learning is considered to take place as a result of attempts to consciously search for the rules underlying the strings, and to link them with previously learned rules (Robinson 1995b: 309).

[34] Thus, artificial grammar research allows for a separation of learners' mental operations being the result of exposure to or manipulation of input, contrary to the acquisition of natural languages, which is usually also influenced by pedagogical procedures or previous learning experience.

[35] However, due to a multitude of factors involved in SLA and the complex nature of natural language acquisition, Ettlinger et al. (2016: 842) concede that "more insight into the specific cognitive components involved in artificial and natural language learning" is still needed.

Investigating whether implicit learning of language, that is, learning without awareness, is at all possible, constitutes an important aim of research within the laboratory artificial grammar learning strand; it has to be noted, however, that a high level of differentiation with regard to the findings and their interpretations has been observed. First, studies whose results have indicated a *possibility of learning without awareness* will be reviewed, followed by a summary of artificial grammar research which has pointed to *limitations of such learning*. For easier reference, key information about the studies (organized in chronological order) is presented in Table 3.

Table 3. A summary of selected research on consciousness in the acquisition of artificial systems.

Researcher(s)	Aim	Methods	Participants	Results
Reber (1967)	To test the possibility of implicit learning	Reproduction of sentences, grammaticality judgments	10 psychology students at a US university	The implicit learning task resulted in the abstraction of an underlying rule
DeKeyser (1995)	To test the effectiveness of implicit and explicit learning	Grammaticality judgments, production test, metalinguistic test, questionnaire	61 L1 English adults	Explicit learning led to knowledge of abstract underlying patterns; minimal effects of implicit learning
Hama and Leow (2010)	To test the possibility of implicit learning	Think-aloud protocol, receptive and productive knowledge test	34 L1 English adults	No evidence of implicit learning
Morgan-Short et al. (2010); Morgan-Short, Steinhauer et al. (2012)	To investigate implicit and explicit learning mechanisms	The ERP technique, accuracy tests	30 L1 English adults	Equal accuracy levels for implicit and explicit groups; implicit learning relied on L1-like mechanisms
Leung and J. N. Williams (2011)	To test the possibility of implicit learning of form-meaning connections	Picture description, sentence reformulation, reaction time	25 L1 English adults	Implicit knowledge about the target connections emerged

Rebuschat et al. (2013)	To test the possibility of implicit learning of form-meaning connections	Tests and subjective measures	30 L1 English adults	Both implicit and explicit knowledge was acquired after incidental exposure to target features
Kachinske et al. (2015)	To test the effectiveness of incidental and intentional learning	Grammaticality judgments with confidence ratings, follow-up written report	65 L1 English adults	Some effects of implicit learning; better effects of explicit (intentional) learning
Rogers, Révész and Rebuschat (2016)	To test the possibility of incidental acquisition of inflections	Grammaticality judgments, subjective measures, questionnaire	42 L1 English adults	Salience of clues and levels of attention as factors in acquisition; partly implicit knowledge emerged

Reber (1967) was the first researcher to conduct empirical investigations on the role of consciousness in the learning of artificial grammar, and is credited with coining the term 'implicit learning.' In one of his experiments, participants in one group were exposed to an artificial finite-state grammar, and in the other group to a random string of items. They were then instructed to learn the items as they were displayed to them, without any of the rules of the grammatical system being explained. As a result, the participants learned the grammatical sequences better than the random ones, which was interpreted as their ability to infer the underlying rules, although none of them was able to formulate the rules once the learning task was over. A follow-up experiment, in which the training session was the same, but a testing stage with a grammaticality-judgment test (GJT) was added, led Reber (1967: 863) to formulate conclusions about the implicit nature of the learning that occurred. He made three main points: that the patterned information in the grammatical stimulus sequences facilitated the memorization task, that this information was "abstracted" without the use of explicit strategies, and that implicit knowledge can be further applied in other tasks. Generally, these findings were understood as evidence for implicit learning.

Leung and J. N. Williams' study (2011) aimed to verify the possibility of implicit learning of form-meaning connections, that is, the aspect of grammar that is particularly useful in learning L2 grammar. The participants, 25 L1 English adults at university level, learned semi-artificial determiners through pairing them with English nouns. They were given some, but not all, information about the functions of these forms: they were told that some of them referred to adults and others to children, but they were not told that there was the "agent/patient" distinction with reference to their functions. In the training stage, they were taught the articles in relation to the child-adult distinction, and their attention was focused on the articles through example sentences and picture illustrations. The test included a picture description task, a reaction time test, and a sentence reformulation task. The test results showed that 20 out of the 25 participants were *not able to verbalize* their knowledge about the grammatical information, and were thus considered to be *unaware* of it. The remaining five admitted to being aware of the rule, as they could see the link between the articles and the agent/patient functional distinction. However, reaction times in the final stage of the testing indicated that the participants displayed some sensitivity to the violation of the underlying rule and some articles were implicitly associated with their thematic roles. This was interpreted as evidence for *implicit learning* of the form-meaning relationship.

Rebuschat et al.'s (2013) study was a partial replication, with a number of modifications, of Leung and J. N. Williams' (2011) study, and it also aimed to verify the possibility of learning form-meaning connections without awareness. The participants, 30 native speakers of English, divided into an experimental and a trained control group, learned artificial determiners presented through noun phrases in a semi-artificial language (English nouns, artificial determiners). The experimental group participants were told that these determiners referred to distance relations (near versus far), but were not told that the input sentences also exemplified some rules concerning animacy (animate versus inanimate). The participants were, however, exposed to sentences containing all the rules (distance and animacy) at the training phase. The trained control group received the same instructions, but the animacy rules were removed from their training. At the testing phase, the participants decided which of the four determiners fit the contexts of new sentences based on the rules. Apart from this, the testing also included using subjective measures of

awareness in the form of confidence ratings and source attributions. The test results revealed that the experimental group, that is participants who were not explicitly told about a hidden regularity in the language samples they were exposed to, outperformed the control group, that is those who were not exposed to examples illustrating the animacy rules. The findings thus indicated that the *exposure* resulted in *implicit learning*. However, the subjective measures of awareness suggested that the experimental group participants' knowledge was *conscious*, as they admitted to being confident about their choices and aware of the fact that some knowledge had been acquired. The researchers thus concluded that "participants acquired both conscious and unconscious structural knowledge as a result of exposure" (Rebuschat et al. 2013: 265). The study confirmed that adult learners are able to establish new form-meaning connections under incidental learning conditions, and, importantly, that incidental exposure can lead to both explicit and implicit knowledge of language.

In another study, Rogers, Révész and Rebuschat (2016) investigated whether inflectional morphology can be acquired incidentally and whether the acquired knowledge would be implicit or explicit. The participants were 42 L1 English adults, randomly divided into an experimental and a control group. The training phase, administered to the experimental group only, included incidental exposure (without any explanations) to an artificial inflectional system including English sentences with inflected nouns based on the Czech language (e.g. "Peter used a britvu in the bathroom today"), together with corresponding images. The testing consisted of a grammaticality judgment test (GJT) (with new sentences) with subjective measures, and was followed by a debriefing written questionnaire. The test results revealed certain levels of acquisition, but only for one case (accusative, and not nominal), which could have been the effect of the *greater salience* of this form and *increased attention* paid to it. According to the debriefing verbal reports, all of the experimental participants ($n = 21$) reported *noticing* the inflectional endings, which pointed to *awareness* of the surface features of the structure, but were not able to verbalize the rules. The results indicated that the brief incidental exposure to input had led to a development of *partial implicit knowledge* of the target structure.

Other studies have investigated precise learning mechanisms within explicit and implicit training conditions. For example, Morgan-Short et al. (2010) and Morgan-Short, Steinhauer et al. (2012) made use of event-related potentials (ERP) as an online technique in measuring implicit and

explicit L2 learning and neuronal processing in a group of 30 L1 English adults. The target structure were noun phrase gender agreement in an artificial language (Morgan-Short et al. 2010) and word order (Morgan-Short, Steinhauer et al. 2012). In both studies, in the training phase, learners were divided into two groups: implicit (n = 14), which underwent implicit (exposure to meaningful examples) and explicit (n = 16), which underwent explicit (meaningful examples with rules) training in the artificial language, and both groups had receptive and productive practice. Testing was conducted twice during treatment, always with the use of accuracy tests (e.g. GJT) and ERP measures. The tests did not reveal any differences between the groups in terms of accuracy, pointing to *equal levels of acquisition* in both implicit and explicit learning conditions. The researchers concluded that the lack of difference could be explained by the fact that the training was focused only on the formal properties of the structure. However, the ERP measures revealed more *L1-like processing* in the implicit group. Thus, a difference in brain activation stimulated by the different types of learning were confirmed, suggesting that implicit learning stimulates native-language brain mechanisms.

Other studies have indicated *limitations of implicit learning*, highlighting a role for consciousness, focal attention and awareness in effective processing of language data and, ultimately, language acquisition. Some of such studies are reviewed below.

In DeKeyser's (1995) study, 61 participants (L1 English adults) were exposed to a miniature artificial language with a rich inflectional system, consisting of five morphological rules. In the implicit learning condition, learners were exposed to sentences in the new language accompanied by pictures illustrating their meaning, whereas in the explicit condition, the sentence-picture presentation was preceded by an explicit explanation of the rules. The testing stage included a final GJT, a production test (in which sentences were provided in the written form for stimulus pictures), metalinguistic tests on the knowledge of rules, and a retrospective questionnaire. The GJT results indicated that the explicit group participants performed better on sentences containing novel inflected words, whereas there was no difference between the groups with relation to 'old' forms, present in the training. This finding was interpreted as evidence for learning and remembering these forms as *ready chunks* by the implicit group, and as one of the limitations of implicit learning. There was also a correlation between the production test and the metalinguistic test results,

pointing to the significant role played by *rule knowledge* in performing the *sentence formation* tasks. The retrospection stage revealed that a significantly higher number of the explicit group participants looked for errors in the sentences used for training, and paid much more attention to the grammatical structure of sentences in the learning sessions. Most of the implicit group participants, on the other hand, admitted that they had not discovered any specific rules in the training material. Concluding the overall results of the study, DeKeyser (1995: 399) wrote, "no evidence for implicit learning of abstract patterns was found."

Hama and Leow's (2010) study, which aimed to investigate the role of awareness and consciousness in SLA and find out whether learning without awareness is possible, was an extension and partial replication of J. N. Williams' (2005) study. It made use of a hybrid design comprising both the concurrent data elicitation technique (think-aloud protocol) as well as a test consisting of receptive and productive tasks. The participants were 34 L1 English adults, and the target structure was the same semi-artificial grammar determiner system used in J. N. Williams' (2005) and Leung and J. N. Williams' (2011) studies, but with an addition of more non-determiner phrases. During the treatment, participants received instruction on the four determiners and some of the rules, followed by listening to sentences and repeating them, and doing a completion task while thinking aloud and creating mental images of the sentences. On the basis of the results of the study, the researchers failed to find evidence of implicit learning. The learners who displayed no awareness at the stage of encoding were also *not able to demonstrate any sensitivity* to the selection or the production of either the previously introduced or new determiner-noun combinations.

Kachinske et al.'s (2015) study explored incidental and intentional learning of a morphosyntactic rule, the movement of the definite article due to the absence or presence of an attributive adjective, in a semi-artificial language based on Macedonian. The participants, 65 L1 English adults, were assigned to one of three conditions: incidental (instructed to focus on the meaning), intentional (instructed to figure out the rule), and control. Both treatment groups received a pre-training introduction to the determiner system, and during the treatment phase, which consisted in exposure to sentences, as well as comprehension questions to make sure they would attend to meaning. The testing involved an untimed GJT (although reaction time was measured as well) with confidence ratings and a debriefing writ-

ten report on their thoughts concerning the stimuli. In the test, both treatment groups performed equally well on the simplest rule (noun-determiner ordering), but the intentional (*explicit*) group outperformed the incidental one on a *more complicated rule* (adjective-determiner-noun order). Because the incidental group's performance on the GJT was above chance despite their inability to verbalize the rule, the researchers concluded that some limited *implicit learning* had taken place. However, because of the intentional group's superior performance on test items illustrating a more complicated rule of determiner use, the results point to limitations of incidental learning of more complex rules, and they confirm the role of *focal attention* paid to features in input for their uptake.

1.4.2. Research on consciousness in learning L2 grammar

Other studies within the consciousness orientation toward SLA have explored the roles of consciousness, attention, noticing, and awareness in learning samples of natural languages. Different methodological designs have been applied, with some earlier studies typically involving "the classical pretest-experimental exposure/treatment – posttest design," which was a "coarse-grained measurement of attention" (Leow 2013: 13-14), and other investigations making use of a wider repertoire of research tools. A selection of studies stimulated by the theoretical premises of some of the underpinnings discussed in the previous sections of this chapter (most notably, Schmidt's Noticing Hypothesis, VanPatten's Input Processing, N. Ellis' CREED), as well as addressing the distinction of explicit and implicit learning found in a number of theories, will be reviewed in this subsection. They are summed up, in chronological order, in Table 4.

Table 4. A summary of selected research on consciousness in the acquisition of grammatical structures in natural languages.

Researcher(s)	Aim	Methods	Participants	Results
VanPatten (1990)	To test the effects of a simultaneous focus on form and meaning in input processing	Marking noticed forms, free written recall	202 adult English-dominant learners of L2 Spanish	Attention to both form and meaning can disturb input processing, unless the L2 features are meaningful

Leow (1997)	To investigate levels of awareness and accuracy in a problem-solving task	Pre-/post-tests, think-aloud protocol	28 L1 English learners of L2 Spanish	Higher awareness during the task led to better test performance
Rosa and O'Neill (1999)	To investigate mental processes at the input-to-intake stage	Pre-/post-tests, think-aloud protocol	67 L1 English learners of L2 Spanish	Facilitative roles of explicit instruction, noticing, and understanding for intake
Gass, Svetics and Lemelin (2003)	To investigate attentional processing in focusing on L2 forms	Grammaticality judgments, sentence translations	31 English learners of L2 Italian	Facilitative role of focused attention and depth of processing for intake
Leow et al. (2003)	To test the effects of enhanced input on noticing and intake	Think-aloud protocol, recognition task	72 L1 English learners of L2 Spanish	Salience of features influenced noticing, but no effect of input enhancement on intake
N. Ellis and Sagarra (2010, 2011)	To investigate attention blocking in a learning task	Tests of receptive and productive knowledge	50 L1 English participants exposed to Latin forms (study 1); 63 participants from English, Chinese, Russian and Spanish L1 backgrounds (study 2)	Evidence of attention blocking on some L2 clues as a result of previous knowledge
Calderón (2013)	To investigate the effects of depth of processing, proficiency, and levels of awareness on intake	Pre-/post-tests, verbal reports, questionnaire	24 L1 English learners of L2 Spanish	Depth of processing and awareness levels correlated with intake levels; a role played by proficiency in conscious processing

Godfroid and Uggen's (2013)	To investigate the relationship between levels of attention and intake	Eye-tracking, pre-/post-test on productive knowledge	40 L1 English learners of L2 German	Noticing and increased attention led to enhanced processing and better test performance
Loewen and Inceoglu (2016)	To test the effects of enhanced input on noticing and intake	Pre-/post-tests, eye-tracking	30 L1 English learners of L2 Spanish	No effects of visual input enhancement on attentional processing and intake
Indrarathne and Kormos (2017, 2018)	To investigate the influence of implicit and explicit instruction on attentional processing	Eye-tracking	100 Sri Lankan learners of L2 English	Explicit instruction led to increased attentional processing and to higher 2 knowledge

VanPatten (1990), in a classic study underlying the formulation of the Input Processing theory, explored the possibility of paying *focal attention* to *both form and meaning* during a task involving input processing. The participants were 202 English-dominant learners of L2 Spanish, divided into four different experimental conditions: (1) attention to meaning alone, (2) simultaneous attention to meaning and an important lexical item, (3) simultaneous attention to meaning and a grammatical functor, and (4) simultaneous attention to meaning and a verb form. The participants belonged to three groups in terms of their proficiency in Spanish. All four treatment groups were aurally exposed to a passage, but with different specific tasks reflecting their experimental condition (all participants focused on meaning, plus the other aspects that were demanded by the condition they belonged to). During these tasks, the participants put a mark on a blank piece of paper whenever they noticed the items they were instructed to pay attention to as an operationalization of the construct of 'conscious attention.' This was followed by free written recalls in English, during which the participants wrote whatever they remembered from the text. The results showed a particularly significant recall drop when the participants processed both general meaning and grammatical forms with little referential meaning, which led to the following hypothesis: "conscious attention to non-communicative

grammatico-morphological forms in the input negatively affects comprehension of content" (VanPatten 1990: 294). This finding was related particularly to lower-level learners. On the other hand, attention to important lexical items did not negatively affect comprehension in any of the proficiency groups. One conclusion derived from the study is that *attention* to linguistic features of input does not disturb *input processing* as long as the *meaning* of these features is clear to learners.

Leow's (1997) study addressed the concept of awareness with particular reference to Schmidt's Noticing Hypothesis. Specifically, he investigated levels of awareness, the nature of mental processing, and accuracy in the recognition and production of L2 forms. Twenty-eight L1 English learners of L2 Spanish participated in the study. The treatment task was a problem-solving crossword puzzle activity, and the research tools included tests (in the pre- and post-test format) consisting of multiple-choice and gap-fill activities, and think-aloud protocols. The analysis of the verbal reports revealed that higher levels of *meta-awareness* correlated with *hypotheses testing* and *rule detection* on the basis of the input. The level of awareness at the input processing stage also influenced learners' reception and production, as was revealed in the post-test: a higher level of noticing and awareness displayed in the problem-solving task contributed to learners' ability to recognize and, to a lesser extent, produce in a written mode, the target forms. As concluded by Leow (1997: 494), "[t]he results also strongly illuminate the facilitative role level of awareness may play in subsequent further processing of forms noticed while interacting with L2 data."

Rosa and O'Neill (1999), in an input processing study, investigated the *mental processes* involved at the early stage of converting input to intake. Their major concerns were the effects of input manipulation by participants on their *attention* to linguistic forms, and the effects of *explicit searching for rules* on levels of *awareness*. The participants were 67 L1 English learners of L2 Spanish, divided into explicitly instructed, rule-search, and memorization conditions. The target structure was the Spanish conditional, a complex structure that presents high attentional demands from learners. At the onset of the study, all participants received an explicit explanation of some aspects of the target structure, followed by an exposure task conducted through a problem-solving jigsaw puzzle (matching clauses to pictures). The study was based on a pre- and post-test (consisting of multiple choice recognition tasks) research design and

also employed think-aloud protocols to operationalize awareness at three levels: the level of noticing (reference to the structure without verbalization of the rule), at the level of understanding (an explicit reference to or formulation of the rule), and an absence of awareness, operationalized as no indication that the structure or the rule had been cognitively registered. The test results showed that the explicitly instructed and rule-search groups performed significantly better than the memorization groups; moreover, the participants who reported *noticing* in the input processing also demonstrated *higher levels of intake*, which confirmed the importance of noticing in initial stages of acquisition. Additionally, awareness at the level of *understanding* was found to lead to a more sophisticated type of structural processing responsible for *higher intake*, and, at the same time, an *explicit focus* on the rules (both in the instructed and rule-search conditions) in the problem solving input-based activity led to higher levels of *awareness*. The study thus showed a positive correlation between explicit learning conditions, levels of awareness, and intake.

Gass, Svetics and Lemelin (2003) scrutinized the extent of focusing attention on different parts of language (L2 Italian): syntax, morphosyntax, and lexicon, as well the relationship between focused attention and proficiency. The initial assumption was that attention, as a limited-capacity system, makes it impossible to focus on all aspects of the L2 to the same degree. The participants, 31 English learners of L2 Italian in the 1st, 2nd and 3rd years of study, were divided into two conditions: with and without focused attention. Both groups were exposed to the same input in the form of examples and practice sentences, but their attention was manipulated in different ways, e.g. underlining, explicit instruction and focused questions were used with the focused attention condition, while there was no underlining with instructions to follow the content rather than form in the non-focused condition. The syntactic testing was based on a GJT with a task to correct the ungrammatical sentences, and the lexical test consisted of Italian-English sentence translations. The results provided evidence for the important role of *focused attention* as a mechanism for *effective learning*, as well as the role of *depth of processing* in learning different aspects of language. Although they revealed greater effects of focused attention on the *intake* of all aspects of the L2 (grammar, morphosyntax, and lexis), the most considerable effect were achieved for grammar, not vocabulary, which suggests the possible interpretation that "focused attention is better utilized in more complex ar-

eas" (Gass, Svetics and Lemelin 2003: 527). The results thus point to differential attentional requirements in learning specific aspects of language. Moreover, attentional processes appeared to be linked to proficiency levels, which suggests that attention can be linked to other individual factors as well.

Calderón's (2013) study was similar to Gass, Svetics and Lemelin's (2003) investigation in the sense that it explored the relationships among depth of processing, proficiency, levels of awareness, and intake. The study was conducted on 24 L1 English learners of L2 Spanish at lower and intermediate levels of proficiency, who were exposed to an aural passage containing numerous examples of the targeted structure (the past perfect subjunctive) in the treatment stage, after which they performed a multiple-choice sentence completion task as post-test, during which verbal reports were performed, followed by the completion of a debriefing questionnaire. The tests measured intake, while the verbal reports measured depth of processing and levels of awareness (noticing and understanding). The results revealed higher levels of awareness in higher-proficiency learners, thus indicating that *proficiency* is linked with the *ability to process* more complex grammatical structures in the input. A relationship was discovered between high depth of processing, awareness levels, and intake in the lower-proficiency group. In the higher-proficiency group, depth of processing correlated positively with intake and awareness at the level of noticing. The findings thus support Schmidt's (1990) hypothesis about the role of awareness and its levels in L2 intake. They also point to proficiency levels as a factor influencing the role of these variables.

Indrarathne and Kormos (2017) investigated 100 Sri Lankan L2 English learners' attentional processing of a target syntactic construction in written L2 input in four different input conditions: input flood, input enhancement, a specific instruction to pay attention to the target grammatical construction (causative 'had') in the input, and an explicit metalinguistic explanation. Moreover, the study explored the influence of the conditions on learners' knowledge, and the effects of attentional processing on their knowledge. *Attentional processing*, which was measured with an eye-tracking method, was found to increase as a result of a specific instruction to *pay attention* to the target structure and an explicit *metalinguistic explanation*. These conditions also led to a significant increase in their knowledge of the target structure. The results indicate that increased attentional processing plays a role in the development of L2

grammatical knowledge. A claim is thus made that learners need sufficient support concerning the features of input they should pay attention to, otherwise, "their attentional processes may not be directed to the target feature even if there are abundant examples of it in the text" (Indrarathne and Kormos 2017: 426). Similarly, in an additional analysis of a subset of the same data, Indrarathne and Kormos (2018) found a strong relationship between the *amount of attention* paid to the target structure and the storage capacity and attention regulation function of *working memory*. Moreover, these working memory abilities appeared to be involved in both explicit and implicit learning conditions.

Loewen and Inceoglu (2016), using eye-tracking and pre-/post-test methodology, investigated participants' noticing of the form (past tense in Spanish) and the intake of the structure as a result of exposure to visually enhanced input. The participants were 30 L1 English learners of L2 Spanish, randomly divided into two groups: experimental (enhanced) and comparison (unenhanced). There was also a control group of 16 L1 Spanish participants. The data elicitation instruments included a reading task, a cloze test, an oral production task (an oral narrative on the basis of picture clues), and an exit questionnaire, the aim of which was to measure the participants' awareness of the target forms. The eye-tracking results showed that although L1 Spanish controls read faster than L2 Spanish learners, the differences were not significant. All enhanced group learners noticed the enhancements, but only some of them noticed the regularity, while half of the unenhanced group participants stated they had been aware of the target structure. No statistical between-group differences were revealed with regard to these differences, though. Therefore, it can be concluded that no differences in attention levels were discovered. Similarly, the intake of the target structure, measured by the close and oral production tests, was at a similar level between the groups. The overall results of the study thus showed that *no effects of input enhancement*, as compared to input flood in the unenhanced condition, in terms of attention and L2 learning were found. The researchers hypothesize that an explicit instruction to focus on the enhancements might have resulted in more attention and knowledge gains. Apparently, input enhancement alone does not necessarily bring acquisition benefits. The fact that both groups demonstrated learning gains was a positive result of the study.

Similarly, no or very limited effects of visual *input enhancement* on noticing, attention and learning were reported by Leow et al. (2003). In

this study, 72 L1 English learners of L2 Spanish were randomly divided into the enhanced input and unenhanced input groups, and the targeted structures were the Spanish present perfect or present subjunctive forms. Data were collected through a think-aloud protocol and a multiple-choice recognition task. The results of the think-aloud protocols did not demonstrate any benefit of the enhanced input over the unenhanced input group in terms of the volume of noticing of either of the targeted forms, the levels of comprehension or the level of intake. On the other hand, the *salience* of the two grammatical structures appeared to be a factor in noticing, as the present perfect (a more salient form) was *noticed* with higher frequency than the present subjunctive. Therefore, while perceptual saliency of items was confirmed to be a factor conducive to their noticing, input enhancement appeared not to be a sufficient factor stimulating attention or comprehension. The strand of research on input enhancement has brought different, sometimes contradictory, results. More studies on the effects on learning of different forms of input enhancement as an instructional technique will be reviewed in Chapter 2, in section 2.3., devoted to a review of studies on the effectiveness of different options within grammatical consciousness-raising instruction.

Godfroid and Uggen's (2013) study employed an eye-tracking procedure to investigate the constructs of noticing and attention, exemplified as L2 learners' attention to irregular verb morphology. More specifically, the focus of the study was on whether participants pay attention to irregular verb features, and whether there is a connection between the acquisition of these features and the amount of attention paid to them. The participants were 40 L1 English beginning learners of L2 German, and the target features were irregular stem-changing verbs (a → ä and e → i(e)). In the treatment, the participants read 12 German sentence pairs with stem-changing verbs and 12 German sentence pairs with regular verbs on a computer screen, while their eye movements were recorded. The acquisition of the features as a result of the exposure was measured on productive pre- and post-tests, in which the participants wrote sentences containing given verbs as a response to picture clues. The eye-tracking results indicated that generally, the participants paid more attention (interpreted as behavioral evidence for noticing) to the stem-changing verbs than regular ones. The increased attention was reflected in better performance on the test. This finding can indicate that *enhanced processing* of these forms occurred, stimulated by *noticing* and increased *attention*. Interestingly,

however, this beneficial result was seen mainly in the production of only the a → ä verbs, and not the e → i(e) verbs, which could have been caused by the greater *saliency* of the foreign, non-English umlaut. Generally, the study provides evidence for a facilitative role for attention in SLA, and, as the researchers concluded, it also points to the complexity of factors that can influence learners' *attentional processes*. They wrote, "[t]he efficacy of attention allocation and the resulting learning gains are likely to be influenced by the learners' L1, their prior knowledge and language-learning experience, their working memory capacity in both the L1 and the L2, their developmental level, and the grammar targeted" (Godfroid and Uggen 2013: 316).

Several recent studies have empirically addressed the phenomena of *learned attention* or *attention blocking*, concepts described in theories such as Input Processing and the Cognitive-Associative CREED. The main assumption in these studies is that prior knowledge of L2 or L1 forms, or certain features of the processed input that are more salient to learners, can block their attention to targeted forms newly encountered in the input. N. Ellis and Sagarra's series of experiments (2010, 2011) investigated the phenomena of overshadowing and attention blocking as a result of the influence of the already established L2 and L1 constructions. In one study (2010), attentional processes were investigated in 50 L1 English participants who were exposed to L2 Latin lexical and morphological cues with temporal references. There were three experimental conditions: at pre-training, one treatment group learned two adverbs ('hodie' (today) and 'heri' (yesterday)), the other treatment group learned the past forms of two verbs ('cogito' (I think) and 'cogitavi' (I thought)), and the control group received no treatment. In the subsequent phases of the study (training), the future time reference ('cras cogitabo' (tomorrow I will think), and 'cogitabo cras' (I will think tomorrow) was added, and the participants were exposed to phrases made up of combinations of the adverbs and inflected verbs with a task of deciding what time reference was expressed (past, present, or future) in the displayed phrases (reception test). Finally, the productive testing comprised English-Latin translations of the items that had been presented in the training. The results indicated that the 'adverb pretraining' group displayed sensitivity to the lexical adverb cue, the 'verb pretraining' one – to the verb inflection cue (although to a lesser degree than in the case of the 'adverb' group), and the control group's performance was between them, with no clear preference for cue processing.

Interestingly, the same pattern was observed in both receptive and productive tests, and for all temporal references, including the future tense for which there had been no pre-training. In a follow-up study within the same experiment, the same procedures were conducted with participants from four different L1 backgrounds: Chinese (no inflectional morphology), English (limited inflectional morphology), Russian and Spanish (rich inflectional morphology). The results showed that although all groups attended more to lexical cues, those with rich inflectional L1 systems focused more on the targeted verb cues. Moreover, Russian participants relied less on verb cues than Spanish ones, apparently because of a closer Spanish-Latin inflectional similarity. These studies thus showed that one's *sensitivity* to a certain clue can have an influence on the *reliance* on another clue, providing evidence for *attention blocking* in relation to previous L1 and L2 knowledge in the explicit processing of L2 data. Attention paid to cues is a key factor in their acquisition, and it is influenced by both previous experience and cue complexity. As concluded by the researchers, these attentional biases can be overcome by interventions that make target clues less redundant and more salient.

Summing up the main findings of the research overviewed in this section, the following points can be made:

- A considerable amount of research on artificial grammars has pointed to a possibility of implicit learning, i.e., learning without consciousness, although some study results have revealed limitations of this kind of learning.
- All of the reviewed studies on learning natural languages have demonstrated a role for different kinds and levels of consciousness in effective L2 learning, particularly in detecting patterns and abstracting rules underlying structures.
- Noticing and attentional processing have been frequently scrutinized by researchers, and have been found to positively correlate with intake.
- Certain factors, such as metalinguistic instruction and the saliency of clues in the input, positively influenced learners' focal attention, leading to increased intake.

1.5. Concluding remarks

The chapter has illuminated the concept of consciousness within the SLA perspective through presenting definitions of relevant terms, reviewing certain theoretical positions on the role of consciousness in SLA, and, finally, summing up the findings of selected empirical investigations on the relevance of conscious processing in L2 learning. The discussion of the various ways of defining consciousness and other related concepts has pointed to the challenges of drawing a clear and linear description of each of them and to the overlapping nature of consciousness, awareness, attention and noticing, which leads to considerable terminological confusion in both theoretical and empirical accounts of consciousness in the SLA literature. The initial section of the chapter also highlighted the relationship between consciousness and working memory, and presented a process and product perspective on L2 learning, central to the understanding of the role of consciousness, attention and awareness at precisely defined stages of learning.

The overview of the theoretical underpinnings presented in this chapter has underlined that consciousness plays a crucial role in L2 learning, which is a key tenet of a cognitive approach toward SLA. The theoretical discussion on conscious versus unconscious processes in learning a language was initiated in the 1980s by Krashen's presentation of the acquisition/learning distinction, and reinforced, in the early 1990s, by Schmidt's account of consciousness at the level of noticing and understanding. A number of theory-based and empirically motivated postulations building on these early theories have appeared since then. It is clear from the description of the theories, models and frameworks presented in this chapter that the precise functions of attention and consciousness in L2 learning have been portrayed in different ways; all of them, however, highlight the need to consciously focus on features of the L2 at some stages of learning, particularly at the early input-to-intake stage.

Stimulated by the theoretical underpinnings, research on consciousness in SLA has constituted a considerable area of empirical explorations since the 1990s, and its results have adequately complemented the cognitive theoretical positions. Explicit and implicit learning and knowledge have enjoyed increasing interest from researchers, especially as a result of the emergence of the artificial grammar research strand, which has brought a broader understanding on *learning without awareness*. Research

on natural language learning has also revealed a role for both explicit and implicit learning of forms and form-meaning mappings in adults. Generally, as was seen in the overview of selected studies presented in this chapter, the role of consciousness in effective L2 processing and learning has been confirmed by empirical investigations. The picture which emerges from the results of these studies highlights a prominent role for attentional processes and consciousness at the level of both noticing and understanding in the acquisition of different L2 areas, and especially the grammatical system. Moreover, it has been demonstrated that it is not only consciousness or its lack that matter in L2 processing but also that various levels of consciousness can affect specific learning gains. However, the results of these investigations, as continuously warranted by their authors, need to be interpreted with caution, given the methodological challenges involved in researching the concept of consciousness. It needs to be remembered that consciousness and related constructs have been differently operationalized, measured with different tools, and at different stages of learning. The specific contexts and an array of individual learner variation also influence the outcomes of studies.

Both the theoretical underpinnings and the results of research have provided relevant implications for the practice of L2 teaching. Although the discussion on the role of consciousness in L2 learning and teaching has been relatively recent, beliefs about its position in a learning task have underlain various L2 instructional approaches for decades. Consciousness has been a core issue in most important instructional decisions about, for example, what form of grammar teaching learners need: explicit, rule-based, or implicit, naturalistic, based on exposure and communicative practice. Taking into account the facilitative role of learners' consciousness of the grammatical features to be acquired, as well as the key role of learners' engagement in a learning task, the 'consciousness-raising' option in L2 education seems to be well adjusted to learners' needs. The pedagogical principles behind consciousness-raising are based on the theoretical background outlined in the present chapter. Arguments for form-focused instruction in contemporary L2 teaching, various approaches toward teaching grammar, as well as the definition of consciousness-raising, together with practical considerations for its implementation within the 'instructed language learning' perspective will be the topic addressed in the following chapter, Chapter 2.

Chapter 2

Consciousness-raising in instructed L2 grammar acquisition

2.0. Introduction

The aim of this chapter is to introduce the concept of grammatical consciousness-raising instruction as an option in teaching L2 grammar. The SLA theories presented in Chapter 1 underscore the role of consciousness in forming learners' mental representations of structures, providing an account of how noticing, attention, and awareness help them see patterns, understand how the structure works, perceive and understand form-meaning links, and, generally, support the learning of the L2 grammatical system. Consciousness-raising, understood in the present work as explicit instruction which makes learners aware of grammatical regularities, guiding them toward understanding the rules, patterns and meanings of target L2 structures, seems to be a viable pedagogical solution in achieving this aim.

Chapter 2 consists of four sections. The initial one, 2.1., by discussing grammar as a component of instructed L2 acquisition, aims to demonstrate that in today's communication-oriented L2 teaching there is a place for grammar. Section 2.2. presents an overview of approaches toward L2 grammar instruction. Section 2.3. is devoted to a definition and practical realizations of the consciousness-raising option in teaching grammar, and the final section, 2.4., contains an overview of previous research on the effectiveness of selected C-R options in L2 instruction.

2.1. Grammar as a component of instructed L2 acquisition

This introductory section aims to discuss basic tenets underlying the position of grammar as a component of L2 instruction within the communicative approach. First, it is important to define the notion of grammar in order to clarify how it is understood in the present work. Next, grammar as a vital component of communicative competence, the development of

which is the main aim of contemporary L2 learning and teaching, will be discussed. This will be followed by a definition of instructed grammar acquisition, and by an overview of some individual factors which play a role in the learning of L2 grammar.

2.1.1. Definitions and dimensions of grammar in L2 pedagogy

As stressed by Stern (1992: 127), the term 'grammar' is often used to refer to a broad range of concepts related to a linguistic system, which includes "phonology, morphology, syntax, lexicology, semantics, and discourse analysis," a view that is based on an assumption of a close interconnectedness among all these areas of "linguistic analysis." At the same time, however, Stern acknowledges that in the context of L2 teaching, in order to narrow down and hence clarify the focus on the grammatical system, grammar is usually understood as syntax and morphology. This conception of grammar is assumed in the present work.

Larsen-Freeman (2009: 158) makes the point that the term 'grammar' in the field of L2 learning and teaching has been used in relation to different notions. She makes the following list of seven different meanings of grammar, noting that each of them is also multidimensional:

1. an internal mental system that generates and interprets novel utterances (mental grammar)
2. a set of prescriptions and proscriptions about language forms and their use for a particular language (prescriptive grammar)
3. a description of language behavior by proficient users of a language (descriptive grammar)
4. the focus of a given linguistic theory (linguistic grammar)
5. a work that treats the major structures of a language (reference grammar)
6. the structures and rules compiled for instructional and assessment purposes (pedagogical grammar)
7. the structures and rules compiled for instructional purposes for teachers (usually a more comprehensive and detailed version of (6)) (teacher's grammar)

The conceptualization of the term 'grammar' as a *system of rules* existing in a language user's mind (point 1 in Larsen-Freeman's list presented above) is perhaps the one most frequently found in the literature. For example, Loewen (2015: 76) understands grammar as "the internal cogni-

tive system of rules about the morphology and syntax (sometimes referred to as morphosyntax) of a language."

Points 2 and 3 in the above list refer to the distinction between *prescriptive* and *descriptive* grammar, important in the discussion of the concept. Larsen-Freeman and DeCarrico (2010: 18) explain that prescriptive grammar contains information about which forms in a language are grammatically correct and which are incorrect. It also often classifies forms as standard and nonstandard, judging the former as correct and the latter – as incorrect. In contrast, descriptive grammar also presents a set of rules, but rather those that are actually used by native speakers, instead of stating what grammatical structures should be like. It thus "represents speakers' unconscious knowledge, or 'mental grammar' of the language" (Larsen-Freeman and DeCarrico 2010: 18). In descriptive grammar, the terms 'grammatical' and 'ungrammatical' are also used, but in a neutral, nonjudgmental manner, in order to indicate which sentences are well-formed or possible in a given language from a syntactic and morphological point of view.

Point 4 refers to grammar as a concept described by linguistic theories. Depending on a theory, and these vary widely on their conceptualizations of grammar, different terms are used to explain what grammar consists of. Larsen-Freeman (2009: 519) gives a number of examples of these: "structures (Structural Linguistics), rules (Traditional Grammar), principles and parameters (Generative Linguistics), constraints (Lexical Functional Grammar; Optimality Theory; Head-Driven Phrase Structure Grammar), texts (Systemic Functional Linguistics), constructions (Cognitive Linguistics; Construction Grammar), patterned sequences (Corpus Linguistics; Pattern Grammar), and so forth." It is important to add that *linguistic* grammars provide an account of an "abstract system underlying a language," not of how this system is actually used by language speakers (Larsen-Freeman 2009: 521).

Reference grammar (point 5) is a kind of descriptive grammar and a point of reference for anyone who needs confirmation or consultation on grammatical accuracy, and is similar in this respect to *pedagogical* grammar (point 6), the main difference between them being the user profile and "mode of use." Reference grammar is used for self-help and self-check by any users of the language, while pedagogical grammar is intended for learners and teachers mainly for instruction-related use (Greenbaum 1987: 192). According to Larsen-Freeman and DeCarrico

(2010: 19), pedagogical grammars provide information about the structures that are most likely to be useful for learners, in order to assist them in acquiring the L2, and they are eclectic in scope.

As explained by Larsen-Freeman (2009: 519), *pedagogical* grammar is based on the assumption that a formal description of language needs to comprise an inventory of lexical items and of grammatical principles which will make it possible to create an "infinite variety of internal structures that enter into thought, interpretation, planning, and other human mental acts." From the point of view of functional grammar, it is important that a linguistic form is influenced by the function it conveys. The distinction between *formal* and *functional* grammar is relevant from a pedagogical point of view, because it refers to important issues when describing the grammatical system of a language, influencing the dimensions of grammar to focus upon in teaching. Larsen-Freeman and DeCarrico (2010: 20) explain that formal grammar sees language as an operation of forms within a system. For example, the generative theory (Chomsky 1957) assumes that the syntactic structure is made up of elements from categories such as 'noun,' 'verb,' 'adjective,' which are arranged in such a way as to form a sentence. This view on grammar does not take into account the use of language, only its form. On the other hand, functional models add sociolinguistic and pragmatic factors to the description of grammar, stressing that the communicative value of language structures is what should be emphasized. Hymes (1972) points out that a language user's communicative competence embraces not only the knowledge of formal properties of a language, but also the knowledge of what functions they serve in communication.

As can be concluded from the above discussion, grammar does not only denote the linguistic form of utterances. Derewianka (2007: 855) makes the point that in today's L2 pedagogy, the view on grammar as combinations of parts of speech is too limited, and that grammar learning needs to be treated as both a *cognitive* and *social* activity. As repeatedly stressed by Larsen-Freeman (2003, 2009, 2014) and Larsen-Freeman and DeCarrico (2010), there are three crucial and equally important dimensions of grammar: *form*, *meaning*, and *use*, all of which contribute to accurate, meaningful, and appropriate use of language. As delineated by Larsen-Freeman (2014: 258), the *form/structure* dimension comprises the morphosyntactic and grammatical patterns that make it possible to sequence elements correctly in order to create accurate sentences, and to

link sentences accurately into discourse. The *meaning/semantics* dimension is concerned with what a grammatical structure means. This refers to both lexical meaning (e.g. the meaning of prepositions), and grammatical meaning (e.g., "the conditional states both a condition and an outcome or result"). The *use/pragmatics* dimension refers to the function a structure can serve in a given context. A grammatical structure helps express a specific function in a social context, taking into account a particular setting, the relationship between the speakers, etc. Moreover, it can also perform a function in the co-text within which it occurs. A discourse context and its specific genre or register (e.g. characterized by different levels of formality) influence the pragmatic use of grammatical structures.[1]

What follows from the three-dimensional view on grammar is that it is not a static set of rules; instead, it needs to be treated as a *dynamic* entity, adjusted to the immediate communicative needs of a language user in a specific communicative situation. Therefore, Larsen-Freeman (2003) suggests that grammar be viewed as a skill and as a process rather than as a static area of knowledge. She has coined the term '*grammaring,*' which highlights certain features of grammar. One of them is its evolutionary, developmental nature, which influences the socially defined decisions about which forms are acceptable or not. Another one is the "real-time dynamism" of grammar, connected with the activation of real-time processing in the use of language forms (Larsen-Freeman 2003: 26). This involves constant alertness to environmental clues and the different types of interlocutors that need to be addressed, as well as a constant need to interpret the incoming input and to respond in an accurate, meaningful, and appropriate way.[2] Finally, Larsen-Freeman (2003: 32-33) discusses the dynamisms of interlanguage as another feature underlying the concept of grammaring. The developmental nature of learner language, evident in the "moment-by-moment changes," makes it particularly challenging to trace

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[1] The use of a given structure can thus help a speaker to achieve a communicative aim, convey a specific meaning within a given situation, and signal one's attitudes. For example, although the meaning of the following two requests is the same: "*Do you have the time?*" and "*Please tell me the time,*" the choice of different grammatical structures is influenced by certain contextual factors (Larsen-Freeman 2014: 258).

[2] Larsen-Freeman (2003: 29) explains that this view of grammar is in line with other previous conceptions, such as Hymes' (1972) communicative competence, Halliday's (1994) dynamic model of language, and Hopper's (1988) contrast between 'a priori' and 'emergent grammar.'

the acquisition process, and the transition of rules and structures from the stage of acquisition to the stage of their application.

Discussing the views on grammar as a static area of knowledge or a dynamic skill, Pawlak (2006: 41-42) parallels them to *product* and *process* perspectives on language or grammar. As Batstone (1994: 5) states, the product perspective views language as a set of components in its system, each of which is constituted by a number of linguistic forms. The process view on grammar, on the other hand, focuses on the "myriad ways in which it is deployed from moment to moment in communication." Pawlak (2006: 42) admits that such distinctions have considerable consequences for L2 pedagogy, influencing the ways in which syllabi are structured, with special regard to what place grammar instruction takes in them. At the same time, he concludes that "it is the static view of language that was and perhaps still is dominant in many classrooms, particularly those in foreign language contexts," notwithstanding the fact that "there is currently a marked tendency in the literature to emphasize the process view" (Pawlak 2006: 42). Much in the same vein, Larsen-Freeman (2015) makes the point that various conceptions of grammar derived from research findings have had very limited, if any, influence on the field of L2 pedagogy. For example, bearing in mind how much her publications and those of other scholars have stressed the need to focus on reconceiving the conception of grammar for learning and teaching purposes, it is surprising that the meaning and pragmatics dimensions of grammar are not given sufficient consideration in many classrooms. She writes, "[d]espite researchers' and theorists' attempts to broaden conceptions of grammar, most educators persist in seeing grammar as a set of rules that govern accurate form in language, most often at the sentence level" (Larsen-Freeman 2015: 272).

Although there are certain gaps between SLA research and L2 pedagogy, as exemplified by the product versus process perspectives on grammar, Larsen-Freeman (2015: 264) notes that both teachers and learners appreciate the role of grammar in the didactic process. These attitudes are largely congruent with both SLA research findings and pedagogical recommendations. The following subsection will briefly outline the position of grammar in contemporary L2 teaching.

2.1.2. The position of grammar in contemporary L2 instruction

Nassaji (2017: 205), discussing the role of grammar as a component of L2 instruction, writes, "[g]rammar is central to language and language learning. (…) [Y]et, nothing in the field of SLA and language pedagogy has been so controversial as the role of grammar teaching and learning." Indeed, the position of grammar teaching in the L2 curriculum has enjoyed various levels of popularity, depending on the dominating SLA theories at a given time and the trends reflected in pedagogical recommendations and didactic materials. Celce-Murcia (2015: 14) states that alongside the changes in the field of ELT, approaches toward the teaching of grammar have also undergone change as a result of social and political influences on contextual language use. It can be seen from overviews of the history of L2 teaching, however, that few approaches or methods have downplayed the importance of the grammatical component or rejected it completely (Celce-Murcia 2015; Howatt and Widdowson 2004; Richards and Rodgers 1996). Apart from the Grammar Translation Method, based on traditional ways of teaching classical languages, grammar was perceived as a central element of teaching in the methods influenced by structural linguistics, either mainstream ones, such as the Audiolingual Method, or alternative ones, such as the Total Physical Response, Silent Way, and Community Language Learning. As stated by Nassaji and Fotos (2011: 2), although grammar teaching was realized differently in these methods, they were based on the same foundation regarding the importance of grammar, which was the main content of teaching and the main element for syllabi creation.

On the other hand, grammar has been considered to be of less importance in methods based on functional and interactionist linguistic theories. Ur (2011: 507) makes the point that the *communicative approach*, which was introduced in the 1970s and has been the prevailing approach toward teaching since then, has brought a change in the perception of the position and role of grammar. Savignon (1991: 268-269) stresses that although communicative language teaching (CLT) has shifted the focus of instruction from a sole preoccupation with morpho-syntactic accuracy to a broader perspective of learners' expression of the intended meaning, grammar has remained an important component of learning and teaching. The crucial functions that grammar serves in communication is the main justification for this point of view. She wrote,

> [w]hile involvement in communicative events is seen as central to language development, this involvement necessarily requires attention to form. Communication cannot take place in the absence of structure, or grammar, a set of shared assumptions about how language works, along with a willingness of participants to cooperate in the negotiation of meaning. (Savignon 1991: 268)

Such a position of grammar in communicative approaches is also evident in Canale and Swain's (1980) often cited publication on the scope of communicative competence. Grammatical, or linguistic, competence, is listed as one of the components which constitute a language user's communicative competence. As noted by Canale and Swain (1980: 5), "there are rules of language use that would be useless without rules of grammar." They stress that grammatical competence is strongly integrated with sociolinguistic competence, and that it is not the tacit knowledge of grammar, but the ability to use it, that is relevant for communicative purposes. Discussing the role of grammar in effective communication and its teaching implications, Canale and Swain (1980: 30) state, "[g]rammatical competence will be an important concern for any communicative approach whose goals include providing learners with the knowledge of how to determine and express accurately the literal meaning of utterances." This changing perspective on grammar in communicative approaches, assuming the primacy of language use to achieve communicative aims, is reflected in Larsen-Freeman's (2003, 2014) aforementioned three-dimensional description of the concept of grammar, including the form, the meaning, and the function of grammatical structures, generally accepted in today's L2 pedagogy.

However, Nassaji and Fotos (2011: 7-8) stress that the communicative approach toward L2 teaching has been realized in different ways. With regard to the place of grammar instruction, two main versions exist: the strong and the weak one. Within the *strong version*, exclusively meaning-oriented activities are recommended on the grounds that learners' competence will emerge from engagement in communication; the *weak version*, as exemplified by Savignon's (1991, 2002, 2017) position, assumes that more controlled form-focused activities also contribute to learners' communicative competence. As noted by Swan (2011: 566), currently, there has been a "modest rehabilitation" of grammar teaching, after the times of the influence of the zero-position of grammar and claims about the inadequacy of teaching grammar for L2 acquisition (these will be discussed in

section 2.2.1.). Within contemporary approaches toward L2 teaching, claims are made that grammar instruction is necessary in order to facilitate the L2 learning process and to enhance learners' attainment. This is expressed by Larsen-Freeman (2003: 78) in the following way:

> I believe it is a myth that grammar can be learned on its own, that it need not be taught. While some people can pick up the grammar of a language on their own, few learners are capable of doing so efficiently, especially when they are postpubescent or if their exposure to the target language is somehow limited (…). The point of education is to accelerate the language acquisition process, not be satisfied with or try to emulate what learners can do on their own.

This point of view being widely accepted, the question asked by researchers and practitioners nowadays is not whether grammar should be taught, but *how* it can best be taught in order to bring about optimal learning outcomes (Nassaji 2016b; Nassaji and Fotos 2011; Pawlak 2006, 2017b). The communicative shift in L2 education has, naturally, had consequences for the realization of L2 grammar instruction, with "language laboratory structure drills" being replaced with a combination of form-focused and meaning-focused teaching (Savignon 1991: 268). Celce-Murcia (2016: 3-4), acknowledging the role of grammar instruction in contemporary L2 teaching, stresses that while in the past grammar teaching was decontextualized and carried out primarily at the sentence level, a broader, *discourse-based* perspective is needed in teaching grammar for communication. It is discourse, "the crucial linguistic level" (p. 3) in CLT, that enables learners to fully understand all dimensions of structures, and use them appropriately. That is why a *top-down approach* toward teaching, focused on appropriate comprehension and production of forms, is the key concern of teaching grammar for comprehension. However, while offering broad guidelines for teachers, CLT does not provide prescriptions for specific grammar teaching procedures. As noted by Savignon in a recent publication,

> The nature of the contribution to language development of both form-focused and meaning-focused classroom activity remains a question in ongoing research. The optimum combination of these activities in any given instructional setting depends no doubt on learner age, the nature and length of instructional sequence, the opportunities for language contact outside the classroom, teacher preparation, and other factors. (Savignon 2017: 4)

It can be seen from the above quotation that adequately integrating a focus on the form, meaning, and function of utterances is a challenge for teachers. Savignon (2017: 5-6) emphasizes that nevertheless, grammar is an important component of L2 instruction, and effective grammar teaching, generally speaking, should be related to learners' communicative needs. It thus needs to be based on "[b]roader features of discourse, sociolinguistic rules of appropriacy, and communication strategies" (p. 5). At the same time, teaching language for communication should not overlook the need for raising learners' metalinguistic awareness or even presenting them with grammatical rules.

In Swan's (2011: 566) opinion, some current recommendations for grammar pedagogy, which still fall within communicative approaches, "towards the meaning-freedom-expression-skill using end of the pendulum swing," can easily be misinterpreted if they are not treated with caution. Swan thus argues that the actual realization of grammar instruction must take into account several *factors*, such as the instructional context (e.g., ESL versus EFL), the specific language being learned (e.g., with rich inflectional morphology versus with few inflections), and the needs of the learners. The necessity of adjusting the teaching of grammar to contextual demands and of approaching grammatical structures within a syllabus selectively in accordance with learners' needs is also discussed by Hinkel (2017). She emphasizes that adjusting the content of grammar instruction to contextual and individual factors will help prioritize what is particularly important in a given context and thus make grammar teaching as effective as possible. This means making decisions about what grammar is needed for contemporary language use (because there are many outdated grammatical structures in coursebooks), and about which forms should be used "reasonably accurately" in a given *discourse context* (Hinkel 2017: 369). R. Ellis (2006: 88-89) agrees that appropriate grammar content needs to be selected in relation to factors such as the learnability of a structure, as well as the learners' developmental stage, and teaching "the whole of grammar" seems unjustified.

Discussing the relevance of making decisions about the content of grammar learning and teaching, Ur (2011: 507-509) lists some recent issues which raise important questions about the correctness and acceptability of grammar forms from the perspective of contemporary language use. Among them, she discusses the emergence of the grammar of *English as a lingua franca* (ELF), often based on corpora consisting of ELF speak-

ers' language use, which influences teaching by prioritizing certain forms (those with a higher communicative value) over others (Seidlhofer 2004). Similarly, the inclusion of spoken grammar forms in teaching materials raises questions about the acceptability of certain forms in informal and formal discourse, and about the viability of including them in didactic materials. Finally, the so-called 'e-grammar,' especially its "distinct discourse variety" (Ur 2011: 509) used in informal computer-mediated communication, creates a need to familiarize learners with this specific genre and to raise their awareness about formality levels and the appropriateness of different forms.[3]

It can be seen from the discussion presented in this subsection that grammar is considered as an important component of L2 instruction within the current communicative perspective. As summed up by Nassaji and Fotos (2011: 14), "in recent years, teachers, teacher educators, and researchers seem to largely agree on the importance of grammar instruction, and consequently have attempted to develop frameworks and proposals to promote a focus on grammar in L2 communicative classrooms." A selection of these proposals will be reviewed in section 2.2., devoted to specific contemporary approaches toward teaching L2 grammar. First, however, the concept of instructed grammar acquisition and the role of individual factors in the learning of grammar will be discussed.

2.1.3. The definition of instructed L2 grammar acquisition

Instructed second language acquisition (henceforth, ISLA) has recently started to emerge as a separate area of study. A high number of publications devoted exclusively or primarily to ISLA have appeared in recent years (e.g., Housen and Pierrard 2005; Loewen 2015; moreover, a new journal *Instructed Second Language Acquisition* was published in 2017). However, the beginnings of ISLA can be traced to Krashen's theory featuring the vital distinction between acquisition and learning, and other early investigations into the necessity of providing instruction to learners in order to enhance their L2 development (e.g. Dulay and Burt 1973;

[3] Derewianka (2007: 854) adds that with the increasing multimodality included in texts (written text, still and animated graphics, icons, video clips), the grammar of these various modalities needs to be addressed by L2 instruction in order to prepare learners for understanding, analyzing, and constructing texts typical of computer-mediated language use.

Long 1983). Although ISLA is a subdomain of SLA and they share a number of traits, characteristics, and processes, with ISLA being informed and guided by the more general SLA, these two areas are not exactly the same. For this reason, it is assumed that ISLA, as an important focus of the present book, needs a special introductory section here.

As noted by some researchers (Housen and Pierrard 2005; Loewen 2015; Long 2017), there has been a tendency in the SLA literature to treat ISLA as equivalent to L2 instruction, especially in relation to L2 classroom teaching. However, although the name 'instructed' SLA implies close links between acquisition and instruction, these two concepts are not the same. Long (2017: 8) states that within L2 teaching, many processes occur which are not closely related to language learning processes and outcomes, and conversely, not all concerns of ISLA are directly connected to teaching. Long thus feels that ISLA, because of its specificity and relevance to the general SLA field, deserves a separate space both in theoretical considerations and in empirical research. He formulates the following definition of ISLA (Long 2017: 8):

> *Instructed second language acquisition* (ISLA) means incidental and intentional, and/or implicit and explicit, second language (L2) or second dialect (D2) learning when the learning processes are influenced, or at least intended to be influenced, by teachers, classmates, or pedagogic materials.

This definition clearly underscores both the *learning* and the *instruction* dimensions of ISLA. From the perspective of the scope of investigations falling into the ISLA domain, Loewen (2015: 2) defines it as

> a theoretically and empirically based field of academic inquiry that aims to understand how the systematic manipulation of the mechanisms of learning and/or the conditions under which they occur enable or facilitate the development and acquisition of a language other than one's own.

This definition thus implies that the field of ISLA is particularly concerned with the processes taking place while an L2 learner acquires the target language, but no less important are the variables that influence them and that are associated with some kind of instruction. These foci are also evident in the definition formulated by Nassaji (2016a: 13), according to which ISLA is "an area of SLA that investigates not only the effects

but also the processes and mechanisms involved in any form-focused intervention (explicit or implicit) with the aim of facilitating language learning and development." This definition highlights the close relationship between instruction and acquisition, and the influence that instruction has on L2 learning. Leow and Zamora (2017: 42) pinpoint two key elements of the definitions of ISLA. One of them is a focus on the *cognitive processes*, collectively referred to as the 'mechanisms of learning,' employed by learners in the task of dealing with L2 data in an instructional setting. The other key element is the capacity of instructional intervention to *exert an influence* on these learning mechanisms in order to bring about more effective and faster L2 development. The effects of instruction on acquisition are also particularly strongly emphasized in Loewen's (2015: 2) definition:

> Instructed Second Language Acquisition is a theoretically and empirically based field of academic inquiry that aims to understand how the systematic manipulation of the mechanisms of learning and/or the conditions under which they occur enable or facilitate the development and acquisition of a language other than one's first.

What directly follows from the definitions presented above is that ISLA differs considerably from naturalistic SLA in that it takes place in instructional settings, with some kind of intervention, more or less formal, that could influence it. In their description of ISLA, Housen and Pierrard (2005: 1) stress this vital difference:

> Most SLA research makes a basic distinction between *uninstructed* (*naturalistic, spontaneous, unguided, untutored, informal*) second language acquisition (SLA) and *instructed* (or *guided, tutored, formal*) second language acquisition, according to whether the second language (L2) is learned through spontaneous communication in authentic social situations or under pedagogical guidance. (original emphasis)

Long (2017: 9), highlighting what ISLA is *not* related to, lists such non-instructional L2 acquisition settings as stay and study abroad, naturalistic exposure to films or to input from different kinds of media in general, and naturalistic exposure to the L2 in immersion and submersion settings, unless such exposure is part of instructional procedures. While it is quite clear that the context of untutored SLA is naturalistic and non-institutionalized, the setting of ISLA does not necessarily have to be insti-

tutionalized. Although in fact most of it takes place within educational institutions and, specifically, within L2 classrooms, including immersion, content-based and technology-supported programs, the concept also embraces self-study settings. These can be either individual or with a tutor, and can make use of technology, dictionaries, grammar reference materials, etc. (Housen and Pierrard 2005: 2; Loewen 2015: 3; Long 2017: 8; Nassaji 2016a: 13). Moreover, Loewen (2015: 3-4) makes the important point that it is not so much the context in which the learners find themselves, but their attempts to acquire the L2 that differentiates uninstructed and instructed SLA.[4]

Housen and Pierrard (2005) note that it is not known with certainty how similar or distinct the processes involved in untutored SLA and ISLA actually are, and different theories have viewed this issue differently. At one extreme, some scholars (e.g., Krashen 1981, 1985) assume the existence of crucial differences between naturalistic acquisition and instructed learning, pointing to an advantage of uninstructed SLA as the only valid kind of acquiring the L2, and to a severely limited or even detrimental effects of tutored learning. Others (e.g., Gass 1997), on the other hand, believe that the core processes within instructed and naturalistic learning are the same. A number of middle-ground perspectives see both similarities and differences between these two, with a premise that SLA can be manipulated by instruction.[5]

Keck and Kim (2014: 145) make the point that the area of ISLA, understood as an interaction between L2 instruction and the L2 learning process has, in recent years, broadened its scope of investigation, from the primary interest in input, interaction, and output that dominated in the1980s and 1990s to an increasingly large range of issues, so that currently it embraces three major perspectives: interactionist, sociocultural, and cognitive. It is the *cognitive orientation* of instructed SLA that is the main focus of this work. Keck and Kim (2014: 146) explain that

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[4] Similarly, Leow and Cerezo (2016: 45) state that exposure to some kind of manipulation to L2 data, rather than instruction itself, is what should be stressed, because the term 'instruction' is unnecessarily associated with intervention by another person, such as a teacher or a researcher.

[5] In fact, the assumption that "L2 instruction matters and can be beneficial for L2 learning" (Loewen 2015: 1) is a central tenet in ISLA, and, therefore, how instructional manipulations influence acquisition is the domain of both theoretical and empirical studies within ISLA.

> cognitive orientations focus primarily on the inner workings of cognition: attention, awareness, information processing, memory storage and retrieval. Key questions explored in this domain include: What role might instruction and practice play in the development of automatic processing and retrieval skills? In what ways do the cognitive demands of a task impact the accuracy, fluency, and complexity of learner language?

While ISLA, by definition, refers to various subcomponents of language, a large proportion of it is, in fact, related to the acquisition of *linguistic forms*. As explained by Long (2017: 9), it most frequently investigates "interlanguage development and the acquisition of different kinds of linguistic forms, form–meaning and form–function relationships" and enhancing learners' "ability to perform real-world tasks for which they need the L2." Following this explanation, Long goes on to point out that not all areas of research on L2 teaching qualify as ISLA. His position is (contrary to Keck and Kim's, which acknowledges a broader perspective on this issue) that socio-affective aspects of learning and teaching do not belong to the field of ISLA. Moreover, ISLA includes studies on cognitive processes rather than pedagogical procedures, unless a clear link between these is investigated. In the same vein, VanPatten (2017: 46) also contends that in his understanding, ISLA should be narrowed down to learning "language itself," and not, for example, the development of language skills. Probably for the same reason, although ISLA is a broader term, the term 'instructed L2 grammar acquisition' has appeared in the literature and has been used by researchers (e.g., Angelovska 2017) with a particular focus on the acquisition of grammar within ISLA. The special role that the learning of language forms plays in ISLA is also underscored by the fact that most researchers associate ISLA with intentional learning, typically discussed in relation to vocabulary and grammar.[6]

As stated by Nassaji (2017a: 215), instruction may not assist acquisition all the time, because it needs to meet several conditions in order to be effective. Therefore, what kind of learning occurs in ISLA and how effective the instruction is appears to be influenced by a number of mediating factors,

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[6] Intentional learning, understood as "a deliberate attempt to commit factual information to memory" (Hulstijn 2013: 2632), is often explicit, and typically occurs under formal instructional conditions. Although this kind of learning is most frequent in ISLA, instruction can be designed to stimulate incidental and implicit learning, which are also investigated within the scope of ISLA (Leow and Zamora 2017; Long 2017).

including individual learner variables. The role of individual differences in instructed L2 grammar acquisition, an area that is particularly important in successful ISLA, will be discussed in the following subsection.

2.1.4. Individual differences and instructed L2 grammar acquisition

As noted by Housen and Pierrard (2005: 10), individual learner differences are, at least partly, responsible for the varying effectiveness of grammar instruction. In their opinion, although the influence of individual variables on ISLA is "generally assumed," it has been "insufficiently demonstrated" by empirical investigations so far. In a similar vein, Pawlak (2017a: 76-77) states that with a considerable disparity among learner factors and course profiles, individual variation is bound to have an impact on the outcomes of learning, and thus it deserves a serious consideration from teachers and scrutiny from researchers. Given the vast amount of research into various aspects of form-focused instruction, it is surprising that the precise role of individual factors as mediating variables in different options for grammar teaching has been largely neglected by research.[7]

According to Pawlak (2017a: 84), the individual learner variables that can influence instructed L2 grammar learning fall into three categories: *cognitive*, *affective*, and *social*. Cognitive factors include: language learning aptitude, working memory, age, learning styles and strategies, and developmental readiness to acquire a given form. Motivation to learn grammar, anxiety, and willingness to communicate are all affective factors. Finally, attitudes, beliefs, goals, and identity are classified as social factors by Pawlak. Loewen (2015) lists the following individual factors that are particularly important, in his opinion, in ISLA (although he does not specifically discuss the learning of grammar): motivation, willingness to communicate, learning strategies, learning styles, personality, language learning aptitude, and working memory.

Discussing the relationships between *cognitive factors* and learning grammar, Pawlak (2017a: 84) hypothesizes that *working memory* capacity can influence learners' ability to notice and pay attention to grammatical

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[7] Pawlak (2017a: 79-80) lists five groups of factors within a broader framework for researching form-focused instruction: 1) linguistic (e.g. the complexity of forms, formal and functional salience), 2) psycholinguistic (learners' readiness to acquire structures), 3) teacher-related (choices of pedagogical options, preferences and beliefs), 4) contextual (e.g. exposure to input, constraints of settings, educational policies), and 5) learner-related.

features, for example in enhanced input. It can also increase learners' alertness to corrective feedback clues provided by the teacher and improve self-correction ability. Biedroń (2017: 35) adds that learners with a larger working memory capacity can deal with complex learning tasks more efficiently. Moreover, she makes the point that working memory is related to intelligence, another cognitive factor. Intelligence, in turn, is positively correlated with instructed learning of forms, understanding explicit explanations, and the ability to choose appropriate learning strategies (Biedroń 2017: 30). Another cognitive factor, *language learning aptitude*, has undergone several re-definitions since the 1950s, when it was first described by Carroll and Sapon (1957) and Carroll (1962), and now it is assumed that it can influence not only explicit, but also implicit learning processes (Skehan 2015: 368). Higher aptitude has been found to be correlated with higher capacity to benefit from grammatical instruction (Skehan 2015: 371-373). *Grammatical sensitivity*, one of the four components of language aptitude measured by the "Words in Sentences" part of the Modern Language Aptitude Test (MLAT) (Carroll and Sapon 1957), is defined as learners' ability to understand the functions that words and phrases perform in a sentence. As summed up by VanPatten and Smith (2015: 3), "[s]uch sensitivity would presumably enable [learners] to perceive, analyze, or otherwise learn the grammar of another language more readily than those who are less sensitive to grammatical structure in their native languages." Skehan (2015: 371) notes that grammatical sensitivity, as a vital subcomponent of aptitude, has been researched in relation to learners' metalinguistic knowledge and language performance. Results of studies (Alderson et al. 1997; Roehr 2007; Roehr and Gánem-Gutiérrez 2008) point to a correlation between higher levels of grammatical sensitivity and metalinguistic knowledge and, to a lesser extent, to better performance. Summarizing research on various components of language aptitude and ISLA, Li (2017: 402-404) states that aptitude appears to be important not only in form-focused, but also meaning-focused instruction, that aptitude may impact the outcomes of learning at lower rather than higher proficiency levels, and that it plays a greater role in inductive than in deductive instructional modes. Following this, learners with high-aptitude levels may benefit more from inductive teaching, whereas deductive teaching may be better suited to low aptitude learners.

Pawlak (2017a: 84) notes that *learning style*, another cognitive factor, makes a difference in instructed grammar learning because it can impact

the level of focusing on and benefitting from instruction. For example, field-dependent learners can find inductive learning more effective, and field independent learners may appreciate the provision of rules. Furthermore, learning styles can underlie learners' selection of *learning strategies*. Grammar learning strategies are defined by Oxford (2017: 244) in the following way: "*L2 grammar learning strategies* are teachable, dynamic thoughts and behaviors that learners consciously select and employ in specific contexts to improve their self-regulated, autonomous L2 grammar development for effective task performance and long-term proficiency." Oxford (2017: 246) illustrates the *learning styles/strategies* relationship by providing the following example:

> Learners whose learning style has been identified as analytic tend to use grammar learning strategies that involve looking at specific parts (often small) of the language system, comparing and contrasting, putting information into organized hierarchies, and testing hypotheses about the L2, whereas learners whose learning style is more holistic prefer strategies that involve less analysis and that involve seeking the big picture or general tendencies.

Oxford, Lee and Park (2007) offered a typology of strategic behaviors in relation to the mode of instruction received. They thus distinguished the following strategies: strategies in purely meaning-oriented situations, strategies in implicit learning that includes form, strategies in explicit-inductive learning, and strategies in explicit-deductive learning. Pawlak (2010, 2017b) has devised another typology of grammar learning strategies, which includes the following groups of strategies:

- metacognitive strategies (associated with planning, organizing, and monitoring the learning of L2 grammar, as well as evaluating its results);
- affective strategies (associated with regulating one's emotions in the process of learning);
- social strategies (associated with cooperation with others, e.g., the teacher and peers, in the process of learning grammar);
- cognitive strategies (associated with thinking processes and behaviors directly linked to the process of learning).

Pawlak (2017b: 8) further notes that cognitive strategies constitute the core processes and procedures in learning L2 grammar, and subdivides them into:

- strategies for comprehension and productive use of L2 grammatical structures in communicative activities;
- strategies for the development of explicit knowledge of structures;
- strategies for the development of implicit knowledge of structures;
- strategies for making use of corrective feedback.

However, research into grammar learning strategies revealed that learners use a limited range of strategies and they tend to rely on strategies reflecting traditional explicit teaching procedures (Pawlak 2008, 2009). The assumption that strategy use is influenced by the teacher has been confirmed in studies on the effectiveness of learner training on the application of grammar learning strategies (e.g., Trendak 2015). Mystkowska-Wiertelak (2008) also discovered a correlation between the use of grammar learning strategies and learners' age and proficiency level. Similarly, Pawlak (2012a) noted that strategy use was influenced by different individual factors. Other studies were conducted on multilingual learners. Kemp (2007) found a correlation between the intensity and number of grammar learning strategies used and the number of foreign languages her participants knew. The studies conducted by Wach (2016, 2017) revealed multilinguals' strong reliance on L1-based strategies in learning foreign language grammatical systems.

Discussing the role of *affective factors*, Pawlak (2017a: 85) states that both *motivation* and *affect* can and do influence instructed learning of grammar. While motivated learners are more open to instruction and do their best to benefit from it, irrespective of the pedagogical procedures used, high levels of anxiety can impede the effects of even the most optimal kinds of instruction. *Beliefs* about grammar learning and teaching, classified as *social factors*, can strongly influence learners' perceptions about the usefulness of certain types of instruction and, eventually, have an effect (either positive or negative) on learning outcomes.

Few studies have addressed *personality variables* and ISLA. One example of such a study is Kim and Nassaji's (2017) investigation into the relationship between extraversion, engagement in form-focused episodes

in classroom interaction, and uptake. More extraverted learners at advanced (but not intermediate) level were found to engage in form-focused episodes more intensively, but at the same time, this did not bring positive learning outcomes as measured on uptake tests. Apparently, as concluded by the researchers, the relationships between personality, proficiency, and the effectiveness of grammar instruction is highly complex.

R. Ellis (2005b: 31), admitting the importance of learners' individual differences in ISLA, contends that the most effective matching between instruction and learning can be achieved in two ways. One of them is to conduct instruction in such a way as to best suit a learner, and the other one is to help the learner to adjust to a given kind of instruction. Matching instruction to learners' needs and capacities is facilitated by diagnosing their aptitude levels, motivational profiles, learning styles, etc., and implementing didactic procedures accordingly. On the other hand, helping learners to adapt to instruction can involve learner training which consists in raising awareness of various learning strategies, and offering guidance in the identification and application of those that are most effective. Li (2017: 411-412) suggests that in catering for cognitive individual differences, adapting tasks to match learners' cognitive profiles is a necessity. He suggests making use of activities with varying levels of cognitive burden (e.g., inductive tasks with explicit explanations), employing careful pre-task preparation and post-task feedback, and providing linguistic support in more demanding tasks.

Summing up this section, the following points can be stressed:

- A current definition of grammar highlights its dynamic nature encompassing the form, the meaning, and the use of structures as interdependent dimensions.
- Grammar is a crucial element of communicative competence, hence its importance in L2 instruction is generally acknowledged by researchers.
- Since ISLA is influenced by various factors, including cognitive, affective, and social learner factors, the application of different approaches toward L2 grammar instruction is needed in order to create optimal learning conditions.

2.2. Approaches toward L2 grammar instruction

This section aims to provide a review of selected approaches toward L2 grammar instruction. It will begin with a discussion of non-interventionist (i.e. zero-grammar) approaches, which posit that no grammar instruction is needed for L2 acquisition to take place. Next, explicit and implicit, as well as focus on forms and focus on form approaches toward form-focused instruction, will be presented.

2.2.1. Noninterventionist approaches

Nassaji (2017: 205) admits that the extent to which grammar instruction is important for actual learning outcomes continues to be a current controversial issue. This controversy is linked to the theoretical debates outlined in the previous chapter: the nature and role of explicit and implicit learning, and, more specifically, of "conscious manipulation of information" needed for effective learning. It is generally assumed that implicit L2 knowledge is the ultimate goal of learning, and thus the importance of explicit grammar instruction, typically leading to explicit grammatical knowledge, can be questioned. According to some researchers, grammar instruction makes little or no sense because of its limited or nonexistent impact on learning.[8]

R. Ellis (2011: 36) states that the pedagogical options advocating the 'grammar-free' position fall into *naturalistic*, *immersion*, and *communicative* groups of approaches.[9] In relation to this, Pawlak (2006) lists and discusses four representative examples of non-interventionist didactic instantiations with regard to L2 grammar instruction: the Cognitive Anti-Method (Newmark and Reibel 1968), Canadian immersion programs, the Communicational Teaching Project, and the Natural Approach (Krashen and Terrell 1983), which is the best known and the most widely referred to example of the 'zero option' in teaching L2 grammar.

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[8] Larsen-Freeman (2009: 524) explains that such conclusions were motivated by observations that the knowledge of rules does not necessarily lead to the development of the control of the system evident in communication, and that the forms that are taught are not directly reflected in learners' production.

[9] As explained by Long and Robinson (1998: 18), the noninterventionist positions are founded on a conviction that languages are learned most efficiently in an experiential manner, that is, through the process of using them, rather than through a study of their formal features.

Pawlak (2006: 145-146) and Johnson and Johnson (1999: 57-58) explain that the *Cognitive Anti-Method* was developed in accordance with Chomsky's view of language and universal grammar, thus being a reaction against the structural approach underlying the audiolingual method. According to its main tenets, learners' innate capacity for learning languages should be enhanced through exclusively *meaning-oriented* activities, with extensive exposure to meaningful input being particularly recommended. Optimal L2 learning conditions in the classroom should resemble naturalistic settings. In this way, learners' natural ability to learn would not be disturbed, and acquisition would proceed automatically and easily. On the other hand, an explicit focus on language form, through attention directed at formal L2 features and complex grammar activities, was perceived as a distractor to learning.

Immersion is another example of a noninterventionist approach toward teaching grammar. In immersion programs, "pupils are taught the normal school curriculum through the medium of a language which is not their native one" (Johnson and Johnson 1999: 173), hence they represent content-based instruction, as their focus is on the content of teaching rather than its language (Pawlak 2006: 146). Such instruction is best illustrated by Canadian immersion programs, which were the first ones of their kind. They were initiated in the 1960s in the bilingual areas of Canada in response to a need to improve English-speaking children's attainment in L2 French. At the beginnings of their operation, immersion programs truly embodied "communicative language teaching par excellence," and were entirely "'experiential' rather than 'analytic' or 'formal' in focus" (Swain and Lapkin 1989: 83). This means that the teaching procedures involved the teaching of content much more than of language, resembling subject instruction at regular schools. Swain and Lapkin (1989) provide a detailed description of the teaching methodology on the basis of their extensive observations of schools in Ontario and Quebec. Teachers' questions about the subject matter presented to learners through listening or reading were common practice. Learners responded with brief answers. Such sessions were followed by corrective feedback, with a primary focus on the content, and occasional focus on the language (syntax, morphology, and pronunciation). Interestingly, some grammar activities were observed as well, but they were not contextualized enough to establish the form-meaning connections. Moreover, the input that the learners received was not rich enough, in linguistic terms, to foster effective grammar acquisition. For

example, in a history lesson, only present and future tenses were used, with no opportunity for the learners to associate historical events with past tenses (Swain and Lapkin 1989: 155). Despite opportunities for producing output, the classroom situations did not stimulate learners to produce pushed output, which was accurate, coherent, and appropriate. On top of this, error correction was virtually nonexistent. Larsen-Freeman (2009: 524) points out that a lack of negative feedback in immersion classes deprived learners of negative evidence, which is useful for noticing L1-L2 differences and accelerating acquisition.

Naturally, this type of instruction had consequences for attainment levels. Many researchers (Johnson and Johnson 1999; Lightbown and Spada 1994; Pawlak 2006; Spada and Lightbown 1989) stress that on the one hand, the Canadian immersion programs have been highly successful in helping learners develop their communicative skills[10], but on the other hand, their grammatical accuracy in productive skills is at lower levels. Hammerly (1987) observed that the language produced by learners after 13 years of immersion instruction was highly deficient in terms of linguistic accuracy and complexity. He concluded, "[i]mmersion programs may be communicatively and culturally successful, and politically very successful, but linguistically they are a failure." The apparent doubtful linguistic gains in immersion courses were among the factors which have brought researchers to reconsider the need for a reintroduction of a focus on form in L2 teaching. However, there have been more approaches advocating the 'zero option' with regard to grammar instruction.

The *Communicational Teaching Project* was designed and conducted by a team of researchers led by Prabhu in Bangalore in India in the late 1970s and the early 1980s (Prabhu 1987). It brought a purely communicative approach to Indian schools after a few years of the dominating Structural-Oral-Situational Method (S-O-S), based on structural linguistic syllabi and behavioral psychological insights. The use of S-O-S led to a dissatisfaction with the learning outcomes, as there was no development in communicative skills, resulting in learner frustration (Howatt and Widdowson 2004: 346; Prabhu 1987: 11). The Communicational Teach-

[10] Johnson and Johnson (1999: 174) note that children in total immersion develop native-like levels of listening and reading skills in the L2 before the age of 11. The L1 communicative skills are also well developed, and the general cognitive development as well as subject learning is as good as (or even better than) in L1-medium educational contexts.

ing Project was thus based on the assumption that efforts to communicate trigger the cognitive processes that are needed for successful L2 acquisition.[11] The focus on the linguistic form was incidental, and subjected to a focus on the meaning of utterances. This was precisely the intention of the project at its outset, as it aimed at "a preoccupation in learners with meaning and a resultant effort to understand and say things; it also had a clear notion of the procedures it wished to avoid, namely pre-selection of language and form-focused activity" (Prabhu 1987: 22). The specific kinds of activities used to achieve this aim included completing stories, drama techniques, solving puzzles, and informal talk. These necessitated the application of various communication strategies by the learners in order to get the meaning across: gestures, negotiation of meaning, waiting for the teacher to rephrase, and the L1 as a last resort. Incidental correction within communicative context, as opposed to systematic correction, was used by teachers as corrective feedback. Grammar was assumed to develop on the basis of the operation of an internal system of rules and patterns, and to be stimulated by engaging in communicative meaning-oriented tasks (Prabhu 1987: 70). When reflecting on the merits of the Bangalore Project, Pawlak (2006: 153) states that it largely contributed to a new way of thinking about communicative tasks as a means of promoting incidental learning. It thus constituted an initial version of a process syllabus and a "forerunner of different variants of task-based instruction."

Krashen and Terrell's *Natural Approach* was based on similar assumptions and made use of similar didactic procedures. From a theoretical point of view, it was based on Krashen's Monitor Theory (discussed in Chapter 1, subsection 1.3.1.). Since acquisition is the process that should be fostered, according to Krashen, didactic procedures should provide ample opportunities for learners to be exposed to roughly-tuned, comprehensible input and to take part in meaning-oriented activities, rather than giving them a chance to consciously attend to formal features of language forms. To this end, Krashen and Terrell (1983) recommend extensive use of extralinguistic clues and a sufficient provision of vocabulary in order to aid L2 comprehension in the classroom. Activities stimulating naturalistic acquisition are based on comprehension, while

[11] Importantly, the design of the Bangalore Project also accounted for the social needs for L2 English use by Indian children, making use of "reasoning gap activities", including "mental arithmetic, map reading, timetabling, using information deductively, solving 'crimes', puzzles, and so on" (Howatt and Widdowson 2004: 347).

the final goal of instruction is to prepare learners for fluent communication. Krashen and Terrell (1983: 66-70) present a list of several specific goals, expressed as topics, functions, and situations, for the development of "basic personal communication" and "academic learning" skills. These include, for example, "participate in a conversation with one or more speakers of L2," "request information in public places," "listen to a movie or another audiovisual presentation with academic content," and "read and discuss literature" (p. 66). Among classroom activities recommended for early stages, Total Physical Response procedures, combined with a use of visual aids and other props, are recommended as pre-speech activities. At the early production stage, which is an extension to the pre-speech comprehension stage, learners can give brief answers, consisting of words and phrases, to clues based on visuals, charts, and teacher-talk input. Next, learners create longer phrases and short sentences in responding to open-ended activities, which include techniques such as "open dialog," "association," and "prefabricated patterns" (pp. 84-85). On the basis of these techniques, learners reproduce and create dialogs, often with affective and personalized content, conduct interviews, exchange personal information through filling-in charts and answering a teacher's questions, and are engaged in communicative games, imagination-based and problem-solving speaking activities.

Grammatical accuracy in production is needed, but it will be achieved, in the long turn, through focusing on the meaning of the received input and in the course of communicative classroom activities. Kashen and Terrell (1983: 77) state, "[i]n embracing a 'communication' philosophy, we are not rejecting the idea that student need to acquire (and sometimes even learn) a great deal of grammar," but stress the distinction between *grammar* and *communication goals* in conveying meaning. While expressing certain functions requires the use of particular grammatical structures, learners at beginning levels can initially rely on lexical items and their logical arrangement to achieve the desired goal. At the same time, learners get training in consciously monitoring their utterances for accuracy, but only to the extent that it takes place "without interfering with the flow of communication" (p. 77). Similarly, corrective feedback should be provided in such a way as to give additional comprehensible input and not to overtly focus a learner's attention on the form; therefore, it acts "as a sign of comprehension and success in communication," and does not indicate "progress in acquisition of grammar" (Krashen and Terrell 1983: 87). Recasts, embedded

in communicative context, are recommended, while any direct techniques for error correction are discouraged as increasing learners' affective filters, and not contributing to acquisition processes.

Discussing the pedagogical potential of the Natural Approach, Pawlak (2006: 151) makes the point that while it can be effective in developing learners' conversational ability at basic levels of proficiency, its usefulness for teaching higher proficiency learners, who aim to progress in grammatical accuracy and refine their use of communicative skills, is largely limited. Probably for this reason, the non-interface position on L2 learning, exemplified by the postulations of Krashen's SLA theory, has had a rather limited impact on teachers' instructional practices. Research on classroom practice (e.g., Gatbonton and Segalowitz 2005; Nunan 1987, after Larsen-Freeman 2015: 265) shows that various forms of traditional explicit grammar teaching were extensively found in classrooms even at the time when purely communicative approaches were recommended.[12]

As summed up by Long and Robinson (1998: 20-21), the zero-grammar options might not be effective in terms of the development of grammatical accuracy for a number of reasons. One of them is connected with the fact that adult L2 learning, because of maturational constraints, differs considerably from child L1 acquisition, and older L2 learners hardly ever have the same capacity as L1 acquirers to achieve native-like proficiency levels. Therefore, compensation in the form of form-focused instruction is usually needed. Moreover, not all grammatical structures are equal in terms of the possibility of learning them on the basis of positive evidence alone. This is, in part, influenced by the L1-L2 distance; deviant forms of some structures can cause no breakdown in communication and thus be unnoticed by learners. Finally, as has been demonstrated by research, learning the L2 through focusing entirely on meaning, although possible, is far less effective in terms of rate and ultimate levels of attainment than learning through various kinds of focusing on form, which is of "considerable practical importance for students" (Long and Robinson

[12] According to Larsen-Freeman (2015), teachers' adherence to explicit grammar teaching procedures can be explained by the beliefs of teachers and students about the necessity and beneficial effects of teaching grammar, as well as similar beliefs held by educational policy-makers. This reliance on teaching grammar could also be derived, at least to some extent, from the largely insufficient results of such teaching revealed by empirical research.

1998: 21). While a focus on meaning is definitely recommended in the teaching of grammar, it seems to bring the best results when combined with a focus on the formal aspects of utterances; therefore, form-focused instruction seems to be fully justified in L2 teaching. The following subsection will review implicit and explicit approaches toward form-focused instruction.

2.2.2. Explicit and implicit form-focused instruction

In contrast to the relatively few noninterventionist approaches toward L2 teaching, *form-focused instruction* (henceforth, FFI) presumes that grammar needs some kind of pedagogical intervention in order to be learned (R. Ellis 2001, 2007, 2015a; Pawlak 2006, 2014). The term 'form-focused instruction' is defined by R. Ellis (2001: 1-2) as "any planned or incidental instructional activity that is intended to induce language learners to pay attention to linguistic form." According to Pawlak's (2017a: 76) definition, this term refers to "any attempt on the part of the teacher to encourage learners to attend to, understand, and gain greater control over targeted language features." It is evident from these definitions that FFI is a term covering a broad range of approaches and specific didactic options. What is common to all of them is that they aim at focusing learners' attention on formal features of the L2, and, in this way, ultimately facilitating the acquisition of the target forms.[13]

As contended by Nassaji (2017: 206), early studies on FFI were primarily interested in finding out whether grammar instruction as such is effective. Research on the effects of immersion programs, mentioned in subsection 2.2.1., pointed to an inadequacy of the meaning-only focus on the development of learners' accuracy in production, which served as an argument for the necessity of grammar instruction in order to foster the development of systemic competence in learners and promote their general overall language development (Hammerly 1987; Lightbown and Spada 1994; Spada and Lightbown 1989). On this basis, later research explored more specific questions within FFI, addressing not just a justification for FFI, but raising issues about the types of instruction that are

[13] While 'form,' in its broader definition, denotes "grammatical structures, lexical items, phonological features and even sociolinguistic and pragmatic features of language" (de Graaf and Housen 2009: 736), in the present work it is used in relation to grammatical structures only.

most effective, the factors and conditions that affect the effectiveness of FFI, and the role that FFI plays in the development of both explicit and implicit knowledge.[14]

There are many ways of dividing up approaches to FFI, as different criteria are used for their categorization (de Graaf and Housen 2009; R. Ellis 2001, 2012). One frequently employed criterion in differentiating among grammar instruction approaches is degree of explicitness, that is whether and to what extent instructional intervention is direct or overt, or indirect or covert. Generally speaking, the direct teaching of grammar, in which learners get explicit information about grammatical structures, is called *explicit teaching*, while the indirect kind of intervention, in which learners are not aware of learning grammar, is referred to as *implicit teaching* (Doughty and J. Williams 1998a; R. Ellis 2001, 2007, 2009; Pawlak 2006).[15] The main difference between explicit and implicit instruction thus lies in whether the learners are *aware* of the fact that they are being taught a particular grammatical structure. This is evident in the following definition formulated by R. Ellis (2014: 12):

> [E]xplicit instruction (…) directs attention to grammatical form and caters to intentional learning of a pre-determined grammatical structure. In contrast, implicit grammar instruction attracts rather than directs attention to form and caters to the incidental acquisition of grammatical structures while learners are primarily focused on meaning. Thus, learners are not told what the grammatical target of the instruction is but instead, through various means, have their attention drawn to it while they are engaged in acts of communication.

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[14] As noted by R. Ellis (2001: 8), the theoretical positions on the role of consciousness, attention, and negative evidence in the process of L2 acquisition led to several new questions in FFI research initiated in the 1990s, concerning the adequacy and effectiveness of different types of FFI.

[15] These approaches toward instruction to some extent parallel explicit and implicit knowledge and learning, but it needs to be stressed that although both explicit and implicit instruction aim at developing implicit knowledge, they employ different procedures on the way to achieve this aim (R. Ellis 2009, 2015). Moreover, while the terms explicit/implicit instruction involve a learner-external perspective, the explicit/implicit learning distinction refers to learner-internal phenomena, and is connected with the level of consciousness in internalizing a linguistic feature. These perspectives do not always match (R. Ellis 2007: 439).

This definition of explicit FFI stresses that in both orientations, learners' attention is focused on forms, but in different ways; it also highlights 'intentional' versus 'incidental' learning, and the different levels of learners' awareness about the aims of instruction. De Graaf and Housen (2009: 737), in their explanation of these two approaches, list these and other characteristics of explicit and implicit FFI. They point out the following defining features of *explicit* FFI:

- learners' attention is explicitly directed at the target form,
- the L2 grammatical system is perceived as an object of study,
- instruction is obtrusive in the sense that it deliberately interrupts communication,
- target forms tend to be presented in isolation,
- typically, rules are explained, often with the use of metalinguistic terminology,
- controlled practice activities are typically involved as pedagogical procedures.

These characteristic traits of explicit instruction are contrasted with those typical of implicit instruction. In *implicit* FFI,

- learners' attention to forms is not directed, but attracted,
- the L2 grammatical system is perceived as a tool for communication and expression of meaning,
- minimal interruption of communication takes place, which renders this kind of teaching 'unobtrusive,'
- target forms tend to be presented in context,
- rules are not explained and no metalanguage is used,
- free, meaning-oriented use of the target forms is encouraged.

A delineation of characteristic traits of explicit and implicit FFI is helpful in understanding the logic between the differentiation in the explicit-implicit orientation; however, as stated by Pawlak (2012b: 33), it can lead to a certain oversimplification. It is important to note that there is no clear-cut division between explicit and implicit instruction, and the various specific options within these approaches can be placed on a *continuum* between the highly explicit and highly implicit poles, depending on what features dominate in a given procedure (De Graaf and Housen 2009: 736).

Explicit FFI makes use of explicit teaching techniques, that is, techniques of making learners aware of the language contents they are learning. R. Ellis (2009: 17) explains that in explicit FFI, "learners are encouraged to develop metalinguistic awareness of the rule", which is its most important underlying feature. Explicit teaching techniques thus typically involve providing *metalinguistic* explanations of target *rules*. Instruction based on a provision of grammatical rules is close to the high-explicitness end of the continuum. Whether the provision of rules is helpful and necessary in the course of teaching grammar is a controversial issue and this largely depends on the theoretical position reflected in a given teaching approach. For example, VanPatten and Rothman (2014), adopting a generative perspective, present arguments against rule-based teaching. In their opinion, instructed grammar acquisition consists in the formation of mental representations in the learner's mind, not in learning rules. *Mental representation* is an abstract linguistic system, which is not the same as a set of rules; instead, it is the basis for rule-based behavior. Therefore, they argue, teaching rules disturbs learners' access to the underlying mental representation, which can only be formed through "interaction with input" (VanPatten and Rothman 2014: 29). For a similar reason, Larsen-Freeman (2003, 2009, 2014, 2015), pointing to the generally low effectiveness of providing learners with explicit form-based rules, argues that rules should first of all give learners *reasons* for using a given structure, and offer guidance in understanding why certain forms are used. A provision of reasons helps learners see the meaning-form connections rather than just formal properties of structures, in this way reducing the learning burden and enhancing learners' awareness of the use of a broad range of grammatical structures.[16] In a similar way, Celce-Murcia (2016: 15) suggests that instead of focusing on sentence-level rules, teaching grammar should consist in making learners aware of discourse-based 'tendencies' or 'templates' which can enable them to express meanings in a coherent and fluent way.

At the same time, it needs to be stressed that there are two main options in which rules can be provided within explicit FFI: *deductive* and

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[16] Larsen-Freeman (2014: 268) illustrates this idea with the sentence "*There is a snowstorm coming*," and the explanation: "The function of *there* is to introduce new information. The indefinite article *a* is used in English to mark new information. This is why *a* is used before *snowstorm.*" This procedure makes learners see the logic behind structures and enables them to construct their own sentences based on this logic. Moreover, it is meaning- and function-oriented, tapping all three dimensions of grammar.

inductive. This crucial distinction greatly influences the shape of explicit instruction, the choice of procedures, and the engagement of learners. According to R. Ellis (2015: 195), the main difference between these two is that deductive instruction gives metalinguistic information about the target structure at the beginning of the teaching sequence, whereas inductive instruction, in contrast, provides guidance for learners to facilitate their understanding of the structure. A rule can be formulated at the end of the inductive presentation sequence, but this is not necessary. Larsen-Freeman (2015: 268) links inductive teaching to *discovery* learning, in which learning how to work out an underlying rule on their own is an "added benefit." Elements of deductive and inductive instruction can also be skillfully integrated to the benefit of the learners. One example of such an approach is the 'garden path' teaching technique, in which learners are given partial information about the target structure, while the rest must be induced by the learners themselves (Tomasello and Herron 1989). Doughty and J. Williams (1998b: 208) explain that in this technique, learners' problems are addressed in a proactive way, being dealt with when the learners are in the process of producing potentially problematic language.

The *presentation-practice-production* (PPP) model of grammar instruction is a classic example of *explicit deductive* teaching (R. Ellis 2015; Pawlak 2006). From the theoretical perspective, it is congruent with the Skill Acquisition Theory (DeKeyser 1997, 2007), which was discussed in Chapter 1 in section 1.3.4. This theory posits that learning proceeds through proceduralization from declarative to automatized knowledge, and involves a transition from controlled to automatic processing. In the PPP model, explicit information about the target structure is thus first presented, then the structure is automatized in a serious of more and less controlled grammar tasks, and finally, it is used and further automatized in communicative production activities. According to R. Ellis (2015: 197-198), another example of deductive grammar teaching is *integrated instruction*. Here, explicit information about the structure is also provided, but not at the beginning, but in the middle of the instruction, while learners are involved in communicative activities.

Concerning types of activities exemplifying *explicit inductive* grammar teaching, R. Ellis (2015: 201) discusses *pattern practice* as one typical procedure. Pattern practice, realized as different kinds of language drills, was the most common type of activity in the audiolingual method, based on the behavioristic principle of learning as habit formation. In this

kind of teaching, learners are engaged in the intensive drilling of grammatical forms, but no explicit information about them is provided by the teacher; instead, learners are expected to discover the underlying rule on their own. Another typical example of inductive grammar teaching, in Ellis's opinion, is through *consciousness-raising* instruction, which will be explained and discussed in greater detail in the following section, 2.3.

On the other hand, *implicit instruction*, according to R. Ellis (2015: 204), "is best defined as instruction aimed at facilitating incidental acquisition (i.e., the picking up of linguistic features when learners are not making deliberate efforts to learn them)." Ur (2011: 510) explains that since implicit teaching of grammar is modelled on insights from L1 acquisition, it requires extensive *exposure* to language input, with no conscious explanations. Exemplar-based models of learning, which consist in exposing learners to morpho-syntactic constructions with the aim of helping them acquire the ability to infer how elements are combined to express meanings, fall into this instructional orientation. R. Ellis (2009: 16) adds that implicit instruction provides an opportunity to familiarize learners with examples of how a rule or pattern is used and to internalize it without consciously attempting to learn. In a slightly different realization of implicit teaching, a target structure can be preselected and somehow "masked" from learners' awareness, while a pedagogical intervention still draws learners' implicit attention to it (R. Ellis 2009: 17). Ur (2011: 514-515) notes that implicit teaching techniques should not contain specifically modified language, although the language can be simplified to enable understanding. She clarifies, however, that recently purely communicative task-based instruction has tended to be accompanied by a deliberate teaching of grammar, which adds a more explicit dimension to it.

Importantly, *corrective feedback* (in the narrower sense of correcting errors), essential in all kinds of FFI described in this section, should be briefly mentioned here as a crucial option in L2 grammar teaching. Pawlak (2012b: 17), following Sheen and R. Ellis (2011), explains that it can take many forms, falling within both explicit and implicit FFI orientations. Explicit feedback is obvious to the learner, and can take the form of explicit correction or metalinguistic explanation. R. Ellis (2017b: 9) lists the following oral error correction strategies: repeating (the learner repeats the correct form after the teacher), expressions or gestures (an indication that an error has been made), hinting (with the use of metalanguage, e.g. "article"), echoing (the teacher repeats, highlighting the erroneous element), re-

formulation (an unobtrusive repetition, but with the error corrected). There is also a division into *input-providing* and *output-prompting* options, both of which can be of an implicit or explicit kind. Conversational recasts are implicit, and didactic recasts and explicit corrections are explicit input-providing feedback options. Implicit output-prompting can be realized as repetition and clarification requests, and explicit ones – as metalinguistic comments, elicitations, and paralinguistic signals (R. Ellis 2017b: 10). Concluding the findings of research on the effectiveness of different corrective feedback options, R. Ellis (2017b: 11) states that both input- and output-based options, as well as explicit and implicit ones, appear to be effective. However, output-prompting strategies are more effective than input-providing ones, and explicit strategies are more beneficial for learning than implicit ones. Pawlak (2012b: 169) adds that these options are preferred in "form-and-accuracy contexts." Corrective feedback on written production is always explicit (both input-providing and output-promoting), and usually aims to develop explicit, declarative knowledge of forms. Both types of feedback can be used, direct techniques, such as providing the correct form or reformulation by the teacher, and indirect ones, indicating that an error has been made. Any of these kinds can also be supplemented with explicit metalinguistic information (Pawlak 2012b: 189-190).

Summarizing the discussion on the nature of explicit and implicit approaches toward FFI and their main distinguishing features, it should be stressed, following R. Ellis (2009: 19), that the distinction between these two orientations is by no means straightforward. Depending on their specific shape and the amount of explicit metalinguistic information provided or induced from learners, a whole range of activities can be placed somewhere within the purely explicit and purely implicit ends of the continuum. De Graaf and Housen (2009: 736) illustrate this point by sequencing examples of techniques in the following way:

> from implicit instructional techniques, such as input flooding, input enhancement techniques and recasts, to increasingly more explicit techniques and activities, such as consciousness-raising tasks, cloze tasks, dictogloss tasks, overt error correction, garden path techniques, and the presentation and practice of metalinguistic rules.

This clearly shows that both explicit and implicit FFI have many, sometimes highly diverse, practical realizations, which has consequences both for practical pedagogical and empirical decisions.

2.2.3. Focus on forms and focus on form

Apart from the explicit/implicit distinction in FFI approaches, another distinction, namely that between *focus on forms* (FonFs) and *focus on form* (FonF) seems to be particularly relevant in discussions about the shape and effectiveness of L2 grammar instruction in the contemporary L2 classroom. This distinction was first introduced by Long (1991) as a reaction to "the tension between the desirability of communicative use of the FL in the classroom, on the one hand, and the felt need for a linguistic focus in language learning, on the other" (p. 41), visible in the fields of SLA and ELT at the beginning of the 1990s. On the one hand, new views on teaching grammar appeared in response to the tenets of the communicative approach, realized as procedural, process-oriented, task-based teaching options. On the other hand, however, classroom grammar teaching was still dominated by decontextualized, discrete-item, drill-like practice.

FonFs, in Long's (1991: 44) definition, denotes a traditional grammar teaching approach in which the syllabus and lesson design consist in "making isolated linguistic structures the content of a FL course." FonFs makes use of the synthetic syllabus (in Wilkins' (1976) terms), with linguistic items, such as grammatical and lexical structures, presented to learners in a sequential, linear fashion, according to criteria such as their frequency or difficulty. Parts of structures are gradually, deductively or inductively, revealed to learners in an additive, accumulative manner, as a result of which exposure to language is severely limited. Such an approach underlies several methods of teaching, among them the grammar translation method, the audiolingual method, Silent Way, and Total Physical Response, and typical FonFs teaching techniques include drills, transformations, display questions, explicit corrective feedback, etc. (Long and Robinson 1998: 15-16). Sheen (2003: 226) adds that the FonFs approach, assuming that grammar will not be acquired as a "by-product of communicative activity," requires the teaching of grammar on its own. Its skills-learning orientation is usually realized in three stages: an explanation of some kind, facilitating understanding of the structure, followed by controlled and freer written and oral exercises, and, finally, opportunities are provided for communicative use of the structure.

FonF, on the other hand, is based on a completely different rationale. Long (1991: 46) explains that

> a syllabus with a focus on *form* teaches something else — biology, mathematics, workshop practice, automobile repair, the geography of a country where the foreign language is spoken, the cultures of its speakers, and so on — and overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning, or communication.

It is thus clear from this definition that in FonF, learners are primarily engaged in the expression and comprehension of meaning, and the teaching of grammar is closely connected with their communicative language production, which makes this position a compromise between FonFs and meaning-oriented perspectives. With reference to the original definition offered by Long (1991), Long and Robinson (1998: 23) further scrutinized the concept of FonF and refined its description in a more pedagogically-oriented definition: "[f]ocus on form often consists in an occasional shift in attention to linguistic code features – by the teacher and/or one or more students – triggered by perceived problems with comprehension or production." This focus on form is motivated by human limited attention in performing a task, and, as asserted by Long and Robinson (1998: 24), is frequently found in naturalistic language use, e.g. by a writer who stops to gather thoughts, or by a reader who deals with a "semantic surprise" in a text. Long (1991) and Long and Robinson (1998) further clarify that FonF can be achieved in a number of ways. One of them is through corrective feedback on the most pervasive and systematic errors that appear in the course of communication, which is briefly interjected into the activity. Another way is connected with task-based work, which makes use of input flooded by certain lexical and grammatical items. Intensive work on the input can stimulate learners' use of these items in their own production. Still another FonF procedure involves the use of recasts as a natural, authentic, communicative way of providing implicit negative feedback to learners in the course of meaning-based output activities.

R. Ellis (2016: 3), in a recent review of these approaches, summarizes their main features according to their initial conceptualization (Long 1991; Long and Robinson 1998). He highlights that whereas FonFs is not based on an analysis of learners' needs, needs analysis is a basic foundation for a FonF syllabus. FonFs does not necessarily present realistic L2 models, while FonF attracts learners' attention to the items they may not notice in the course of communication. Moreover, FonFs does not take into account the learnability and teachability of forms, whereas FonF is

closely related to learners' internal syllabus. R. Ellis (2016: 3-4) presents the following list of the main features of FonF in Long's understanding:

- arises in interaction involving the second language (L2) learner;
- is reactive (i.e. occurs in response to a communication problem);
- is incidental (i.e. it is not pre-planned);
- is brief (i.e. it does not interfere with the primary focus on meaning);
- is typically implicit (e.g. it does not involve any metalinguistic explanation);
- induces 'noticing' (i.e. conscious attention to target linguistic forms);
- induces form–function mapping;
- constitutes an 'approach' to teaching (i.e. FonF) that contrasts with a traditional form-centred approach (i.e. FonFs).

R. Ellis (2016: 2) and Ur (2011: 516) point out that while originally, the notion of FonF was used in relation to occasional, spontaneous reaction to perceived problems in communication, its later interpretations have allowed a broader range of procedures within FonF instruction. As pointed out by Nassaji (2016: 36), "[o]ther researchers (…) expanded the concept to include both incidental and preplanned FonF and noted that FonF can take place on a broader scale depending on how and when it is implemented." Nassaji and Fotos (2004: 131) suggest that FonF can be achieved in two ways: by 'process' and by 'design.' The process-based implementation of FonF occurs through making learners engage in natural communication in the L2, with a primary focus on expressing meaning. In the design-based implementation, on the other hand, it is specifically planned, with the use of explicit FFI techniques. It is important to note, therefore, that in its new, revised understanding, FonF can be *explicit*; this point was clarified by Long himself in a more recent publication, when he wrote, "intentional learning is brought to the aid of incidental learning, thereby improving the likelihood that a new form-meaning association will be perceived or perceived more quickly" (Long 2015: 317).

The extension of the concept of FonF in the context of ELT is clearly reflected in R. Ellis' (2001, 2012, 2016) publications. He has re-conceptualized the original definition of FonF, delineating two FonF types, each represented by a range of possible instructional options. These two types are *planned* and *incidental* FonF. In planned FonF, the primary attention is on meaning, but forms are preselected and intensive attention is paid to them. This type of instruction often involves techniques con-

nected with enriched input (flooded or modified in order to contain numerous examples of the target form). Such activities aim to make learners notice the forms and stimulate incidental learning (R. Ellis 2001: 20). Apart from input-based activities, production-based activities, exemplified by focused communication tasks, can be distinguished within planned FonF. They consist in eliciting learners' use of the target structures in communicative, meaning-oriented contexts. It is important that learners' production of the structure is natural, meaningful, and necessitated by the task design (R. Ellis 2001: 21). On the other hand, in incidental FonF learners' attention is not drawn to preselected items, but is attracted to different forms in communicative context. R. Ellis (2006: 102) points out that incidental FonF has particularly high value, because it is likely to draw learners' attention to various linguistic features that have occurred in the immediate context of their focus. In this way, the distribution of the focus is 'extensive' in contrast to FonFs and planned FonF, where the focus is 'intensive.'

Discussing the options within incidental FonF, R. Ellis (2001: 21) explains that they can be either *pre-emptive* or *reactive*. In pre-emptive FonF, a focus on a given form is initiated during a communicative activity before a problem has arisen, while reactive FonF is realized as negative feedback given to learners as a reaction to their errors made while producing communicative output. Recasts and negotiation of meaning techniques are examples of *implicit*, while metalinguistic feedback and elicitation are examples of *explicit* reactive FonF.

It follows from this description of FonFs and FonF that they are not dichotomous approaches; instead, they should be viewed, as is the case of the explicit/implicit distinction, on a continuum. As stated by Doughty and J. Williams (1998a: 4), "focus on formS and focus on form are *not* polar opposites (…). Rather, focus on form *entails* a focus on formal elements of language, whereas focus on formS is *limited* to such a focus" (original emphasis). A similar view is also evident in Table 5, in which Keck and Kim's (2014: 147) idea of FonFs and FonF approaches is presented as a continuum rather than as polar opposites. There is a wide spectrum of options that fall within this continuum.

Table 5. The continuum of approaches within form-focused instruction (adapted from Keck and Kim 2014: 147).

FFI continuum	Description of an approach	Examples of research addressing it
Focus on forms ↕ Focus on meaning	Structural syllabus, organized around discreet grammatical items; decontextualized, rote practice.	–
	Explicit instruction + communication about grammar in collaborative tasks.	e. g. Fotos (1994); Fotos and R. Ellis (1991)
	Communicative task + explicit instruction before or after the task.	e. g. Fotos (1993, 2002); Muranoi (2000)
	Implicit focus on form through planned feedback in oral communication tasks.	e. g. Doughty and Varela (1998); Mackey and Philp (1998)
	Implicit focus on form through unplanned, reactive feedback in the context of meaningful communication.	e.g. Long and Robinson (1998)
	'Pure' / 'strong' versions of Communicative Language Teaching; no explicit grammar instruction or corrective feedback.	e.g. Swain and Lapkin (1989)

As can be seen from Table 5, explicit grammar teaching accompanied by communication about grammar is placed at the FonFs end of the continuum, with other FonFs and FonF options located toward the middle of it. FonF procedures such as oral feedback in communicative activities, and spontaneous reactive feedback, can be found closer to the 'focus on meaning' end of the sequence.[17]

It also needs to be highlighted that although the FonFs/FonF distinction seems to be parallel to the explicit/implicit one, they are by no means the same. As explained by R. Ellis (2012: 275), FonF necessarily involves

[17] Doughty and Williams (1998a: 5), along similar lines, state that the "narrowest interpretation" of FonF offered by Long is "at the end of the FonF continuum," whereas some interpretations offered by other scholars could be classified as FonFs by Long's standards. R. Ellis (2012: 273) makes the point that the distinction between FonFs and FonF is often blurred because it lies in a subjective perception of the aim of a given activity rather than in its objective feature.

a primary focus on meaning, which does not have to be the case with implicit FFI. Moreover, some of the FonF options discussed above clearly fall within explicit FFI. R. Ellis (2016: 6) gives an example of "language related episodes," in which learners, while participating in communicative activities, talk about the grammatical structures they are using, as an activity within explicit FonF.

2.2.4. An empirical perspective on the effectiveness of different FFI approaches

A considerable amount of research, initiated in the 1990s and continuing till today, has been devoted to empirically verifying the effects of *explicit* and *implicit* FFI on learning, and, often, to comparing these two FFI approaches in terms of their effectiveness. Norris and Ortega (2000), in their often cited meta-analysis, investigated the effects of explicit and implicit FFI in 49 experimental and quasi-experimental studies conducted in the years 1980-1998. The results of this meta-analysis revealed greater effect sizes for explicit (d = 1.13) than implicit (d = .54) instruction. It thus found that there were more beneficial effects with explicit teaching than with implicit teaching, and revealed that the learning effects of instructional intervention were durable. However, researchers (e.g., Doughty 2003; R. Ellis 2008; Larsen-Freeman 2015; Nassaji 2017) note that the results of Norris and Ortega's (2000) meta-analysis may be biased in favor of explicit instruction as a result of certain methodological issues. For instance, it is easier to operationalize and measure levels of explicit than implicit knowledge, and such measurements dominate in FFI studies. Apart from this, for the same reason, considerably more studies in these reviews addressed explicit than implicit teaching, which makes an objective comparison between these two groups of studies rather difficult. A further methodological problem is connected with the ways in which explicit and implicit instruction were operationalized; again, since explicit instruction is perhaps easier to operationalize, it took a variety of forms in these studies, while implicit instruction options were limited.

However, these biases were reduced in another meta-analysis on the effects of FFI options, conducted by Spada and Tomita (2010), because in the years 2000-2010 research on implicit instruction became more popular. This review of 30 studies focused on the mediating effects of the type of structures, with special regard to their complexity, in *explicit* and *im-*

plicit FFI. The findings of this comparative analysis still revealed the greater effectiveness of explicit instruction, irrespective of the linguistic complexity of the structures. This was evident in the greater effect sizes for explicit teaching techniques (d = 0.88 for complex structures and d = 0.73 for simple ones at immediate post-tests, and d = 1.02 for complex structures and d = 1.01 for simple ones at delayed post-tests) than for implicit teaching procedures (d = 0.39 for complex structures and d = 0.33 for simple ones at immediate post-tests, and d = 0.56 for complex structures and d = 0.51 for simple ones at delayed post-tests).

The same tendencies were revealed in a recent meta-analysis conducted by Goo et al. (2015) on 34 studies. The overall comparison pointed to larger effect sizes for *explicit* FFI than for *implicit* FFI (d = 1.29 and d = 0.77, respectively). An advantage of explicit FFI over implicit FFI was also evident both on short-term and long-term delayed post-tests. However, it needs to be stressed that both kinds of instruction yielded significant effects in terms of pre- to post-test gains, indicating that both of them stimulated learning.

Concluding the findings of the meta-analyses on explicit/implicit instruction and its effectiveness, Mitchell, Miles and Marsden (2013: 144) point out that "[o]verall, the consensus seems to be that explicit learning conditions result in higher scores on post-tests than less explicit conditions, at least on tests that give instructed learners time to access explicit knowledge." They further contend that measurements involving spontaneous language use often bring rather mixed evidence. There is, however, increasing evidence that explicit attention to grammatical form can contribute to spontaneous production as well, pointing to the fact that both explicit and implicit FFI can have beneficial effects on the development of both explicit and implicit knowledge. Such studies constitute another strand of research on explicit and implicit FFI. R. Ellis, Loewen and Erlam (2009) explored the effects of two kinds of corrective feedback, implicit and explicit, on learners' intake, and on the development of explicit and implicit knowledge. Implicit feedback was provided in the form of partial recasts of the elements of the forms at which there were errors, while explicit feedback made use of metalinguistic explanations without correcting the error. The results of tests measuring implicit knowledge (an elicited oral imitation test and an untimed grammaticality judgment test) showed that both groups improved their pre- post-test scores, but the explicit feedback group benefitted more. Andringa, de Glopper and Hacquebord (2011) investigated the effects of computer-based explicit and im-

plicit FFI on L2 Dutch learners' development of both explicit and implicit knowledge. The findings showed that explicit instruction led to higher results on a grammaticality judgment test, which measured explicit knowledge. Both types of instruction contributed to implicit knowledge, operationalized as performance on a free writing task. Interestingly, learners' L1 was found to be a factor influencing the effects of explicit FFI. L1-L2 similarity appeared to have a structure-specific facilitative effect.

Still another research strand within explicit FFI concerns the effectiveness of input- and output-based FFI options, and the type of knowledge they generate. Erlam, Loewen and Philp (2009) compared the effects of *output-* and *input-based* FFI on the use of the indefinite article for generic reference and on the development of implicit and explicit knowledge. The output treatment involved the PPP sequence with explicit explanation in the presentation stage, a focus on meaning throughout the sequence, and on participants' use of the structure in the practice and production stages. The input group, on the other hand, received explicit instruction and completed structured input activities with no productive use of the structure. Although gains were recorded for both treatment conditions, no significant differences between them were detected on any measures. Therefore, FFI involving both output- and input-based activities appeared to be beneficial in the acquisition of implicit and explicit knowledge. A similar issue was addressed in the study conducted by Mystkowska-Wiertelak and Pawlak (2012), who investigated the effects of input- and production-based instruction on participants' subsequent reception and production of the English passive voice. After explicit instruction given to both groups, the input group was involved in a series of structured input activities, while the output group performed production activities. While no differences between the groups were found on the oral production post-test, the output group performed significantly higher than the input group on the receptive knowledge post-test. Thus, the findings of both Erlam, Loewen and Philp's (2009) and Mystkowska-Wiertelak and Pawlak's (2012) studies revealed a role for both input- and output-based options in grammar teaching. This suggestion was confirmed in the meta-analysis of studies on the effectiveness of comprehension- and production-based FFI conducted on 35 research projects (Shintani, Li and R. Ellis 2013). This comparison revealed that both conditions stimulated both receptive and productive knowledge, as measured by the pre- to post-test gains. The comprehension-based condition brought larger, although not

necessarily durable, effects for receptive knowledge, and the production-oriented condition slightly outperformed the other one in terms of productive knowledge, but only on the delayed post-test. Concluding the results, however, the researchers make the point that "grammar instruction will be most effective if it involves a combination of comprehension-based and production-based activities" (Shintani, Li and R. Ellis 2013: 323).

The effects of *FonF* on L2 grammar learning have been addressed in several studies, although, as noted by Ellis (2016: 17), "global comparative method studies that have investigated the relative effectiveness of FonF and FonFs in developing general L2 proficiency" have not been conducted yet. The results of research comparing FonF and FonFs have been mixed. In one of such studies, Shintani (2015) investigated the effectiveness of FonF and FonFs on incidental acquisition of two structures in L2 English: plural '-s' and copula 'be' by Japanese children. The FonF treatment involved a series "listen-and-do" tasks based on picture clues, with no explicit explanation of the aim of the lessons. In the FonFs groups, the aim was formulated as learning new vocabulary. The post-test results revealed greater levels of comprehension and production in the FonF group, but only for one of the target forms (plural 's'), and no gains were recorded, for any of the structures, in the FonFs group. Shintani (2015: 137) concludes that FonF instruction is more appropriate than FonFs instruction in stimulating incidental learning of grammar. Other studies, however, brought different results in terms of the comparison of FonF and FonFs. For example, Sheen (2005) explored the effectiveness of these two options in teaching interrogative forms and frequency adverbs in L2 English to L1 French children. The FonFs treatment involved explicit explanations of the target structures (provided in learners' L1), drill-like pair-work with guidance and correction, and a freer pair-work activity in which information was elicited from peers. The post-test results revealed significantly greater gains for the FonFs group on both structures. Moreover, these students displayed higher levels of awareness of the structures as measured on grammaticality judgment tests. Sheen (2005: 298) admits, however, that the FonF group students did not have enough opportunities to acquire the forms, because the intended corrective feedback was not consistent enough in the lessons. No differences between the two pedagogical options were confirmed in Pawlak's (2007) investigation conducted on Polish high school learners learning the third conditional in L2 English. The FonF treatment made use of input flood, input enhance-

ment, comprehension tasks, focused communication tasks, and different (explicit and implicit) corrective feedback techniques. The FonFs group was taught with the help of explicit explanations of the structures, with a presentation of rules, examples and paradigms. Discrete-point post-tests did not reveal significant differences between the two treatment conditions, although both groups displayed pre-/post-test gains. Similar findings were obtained on a dictogloss, a more spontaneous production task. The overall results led the researcher to conclude that both FonF and FonFs appeared to be equally effective "in helping the subjects gain greater control over the past counterfactual conditional in terms of explicit and, to a lesser degree, implicit knowledge as well as in enhancing their awareness of this complex feature" (Pawlak 2007: 189).

R. Ellis (2016: 17-18) recapitulates that FonF/FonFs comparative studies are particularly difficult to design and conduct, and the differences in the ways these instructional options are operationalized have led to highly inconclusive results. At the same time, he states that if the FonF options are perceived as a set of procedures rather than a fixed approach, they can be combined with FonFs techniques in flexible ways, and effectively incorporated into various FFI approaches. This seems to be a noteworthy suggestion, given the variety of pedagogical procedures employed by teachers in teaching L2 grammar in classrooms. In a similar vein, Ur (2011: 508) states that "grammatical explanations and exercises" have abounded in coursebooks and teaching practices, notwithstanding the current recommendations of communication-oriented and task-based instruction. Addressing the apparent gaps between recommendations for the shape of FFI based on SLA theories and the actual teaching practices going on in real classrooms, Scheffler (2012) formulates a commonsensical call for not denouncing apparently old-fashioned, "neanderthalian" (p. 605) types of pedagogical interventions, such as explicit FonFs, because they can also turn out to be very useful in promoting L2 development, and appreciated by learners and teachers. Correspondingly, Sheen (2003: 227) calls the claims that FonF is more effective than FonFs "a myth," because no clear advantage of either approach has been demonstrated by research, and a balance in the application of both is needed.

Summing up his discussion on FonFs and FonF as different FFI options in contemporary L2 teaching, and acknowledging the relevance of attending to both meaning and form, Nassaji (2017: 211) formulates the following teaching tip:

> Make sure to include some kind of attention-to-form or consciousness-raising activities into the design of communicative lessons. This can be done, for example, by explaining certain grammatical forms before or after a communicative activity, by using feedback during interaction, or by using input enhancement strategies that highlight grammatical forms in the course of meaning-focused discourse.

This recommendation points to the importance of consciousness-raising instruction, which will be addressed in detail in the following section, as a viable option in FFI.

The following points can be made to recapitulate the section on FFI approaches:

- The noninterventionist approaches toward teaching grammar have brought largely unsatisfactory results in terms of learners' accuracy.
- Explicit, implicit, as well as FonFs and FonF approaches embrace a continuum of a wide variety of didactic options.
- The relationship between the type of instruction and learning outcomes is complex, but research findings tend to indicate an advantage for explicit over implicit FFI.
- A combination of approaches, linking a focus of form with a focus on meaning, is generally recommended in the current literature.

2.3. Consciousness-raising as an option in explicit grammar instruction

This section is devoted to the explanation of *consciousness-raising* (henceforth, C-R) as a concept in teaching L2 grammar. It will begin with a delineation of its definition and characteristic features which differentiate it from other ways of grammar instruction. In the following part, selected practical ways of applying C-R in the teaching process will be outlined, and descriptions of these practical C-R instantiations will be illustrated with examples of possible techniques presented in the literature.

2.3.1. A definition and characteristics of grammatical consciousness-raising

The term 'consciousness-raising' (C-R) in the area of L2 learning and teaching was first introduced and elaborated upon in the 1980s by Sharwood Smith (1981, 1985, 1988a, 1988b), Rutherford (1987, 1988a,

1988b), and by both scholars in cooperation (Rutherford and Sharwood Smith 1985). It is based on solid theoretical foundations concerning the role of consciousness in L2 learning, inspired by cognitive psychology and the debates on implicit and explicit knowledge and learning that were initiated in the field of SLA in the 1970s.[18] Grammatical C-R represents the middle ground position between structure-orientation and meaning-orientation, assuming consciousness to be a *mediating factor* enabling learners to convert input into intake and prepare it for further processing, and eventually (possibly) to the formation of implicit knowledge. Instructional procedures based on the C-R principles thus fit into the *weak interface* position, according to which grammar instruction plays a role in facilitating learners' processing of the input they encounter, promoting understanding, and supporting natural acquisition processes (DeKeyser 1994; Hulstijn and De Graaf 1994; Rutherford 1987; Schmidt 1995). They help learners notice and attend to form while focusing on meaning (R. Ellis 1993a; Nassaji 2017; Rutherford 1987).

Some of the definitions of C-R found in the literature are broad enough to suggest that C-R can be viewed as being largely isomorphic with the general concept of teaching grammar. For example, Rutherford's (1988a) historical overview of the position of C-R in the changing approaches toward L2 pedagogy, with references to procedures applied in the Middle Ages, in the Renaissance, and in some of the 20th century methods, may suggest such a position. Underscoring the importance of grammar instruction, he writes, "[t]he notion that language teaching should have as one of its components (…) the need to raise in some way the learner's consciousness of aspects of the grammatical structure of the language he is learning goes back perhaps several millennia," in this way contending that enhancing learners' consciousness about formal aspects of an L2 is a function of any teaching of grammar. In another place, Rutherford (1998a: 16) states that the main prerequisite of C-R is "that something be known about the grammatical structure in question," which is, again, a very general statement of the aims of grammar instruction. This is congruent with the statement made by R. Ellis (2016: 128) that "[a]ll forms of grammar teaching – whether of the explicit or implicit kind –

[18] However, the very concept underlying the C-R approach, "conceived as a tool of language learning rather than the object of such learning" and aptly exemplified by inductive teaching procedures, can be traced back as far as St Augustine's teaching methods in the Renaissance (Rutherford 1987: 30).

aim at raising second language learners' consciousness of specific grammatical forms and the meanings that they convey." However, approaches differ according to how the concept of consciousness and its role in instructed L2 grammar acquisition are envisaged. For example, Rutherford (1987: 24) explicitly states that there are fundamental differences between C-R and what he calls "conventional notions of 'grammar teaching'" understood as an accumulation of discrete entities by the learner as a result of a teacher's direct intervention. In line with this, there are several characteristics of C-R that account for its specificity.

In an attempt to highlight the most conspicuous features of C-R, Rutherford (1987: 37, 57) metaphorically refers to "language as an organism" in the C-R perspective. This view perceives language as a series of processes, among which "grammaticization" plays a prominent role. In pursuing the grammaticization process, a learner cannot simply "grasp" the knowledge of grammar; instead, open-ended "organically conceived" (p. 58) learning procedures are used. Table 6, compiled on the basis of the ideas of Rutherford (1987: 154-155) and other researchers, presents the main characteristic features of the 'organic' C-R approach as compared with a traditional, 'mechanic' grammar-centered pedagogy.

Table 6. Main characteristics of traditional grammar teaching and C-R instruction (adapted from Rutherford 1987: 154-155).

Features	Traditional, "mechanic" grammar-centered pedagogy	Grammatical C-R pedagogy
Objectives	Grammatical well-formedness	Grammatical understanding
	Grammar as an end	Grammar as a means
Curriculum	Teacher organized	Teacher/learner organized
	Structures	Operations
	Exhaustive	Selective
	Hierarchic	Holistic
	Accumulation	Metamorphosis
	Product-oriented	Process-oriented
Curriculum	Closed-ended	Open-ended
	Language/learner distance	Language/learner proximity
	Increasing complexity	Progressive reanalysis

Teaching/learning procedures	Teach grammar	Teach learning
	Transmission by teacher	Interpretation by learners and teacher
	Grammar is an end (necessary and sufficient)	Grammar is a means (necessary but not sufficient)
	Memory	Understanding
	Specific rules	General principles
	Rule articulation	Operational experience
	Grammar as an obstacle	Grammar as a facilitator
	Speeding up (time needed for production)	Slowing down (time needed for reflection)

Among the main characteristics of grammatical C-R, its aim and capacity to stimulate learners' *understanding* of grammar, instead of merely to focus on grammatical well-formedness, should be stressed. This is very important within the open-ended, organic view of language. Rutherford (1987: 104) explains that C-R instruction makes learners understand not only how a form is constructed, but also how and why a given structure is used.[19] R. Ellis (1997) highlights this in his often-cited definition of C-R. According to him, C-R is "a pedagogic activity where the learners are provided with L2 data in some form and required to perform some operation on or with it, the purpose of which is to arrive at an explicit understanding of some linguistic property or properties of the target language" (R. Ellis 1997: 160). Comparing C-R with grammatical practice, R. Ellis (2002: 169) underscores that while practice activities require learners to produce the target form in a repetitive way, C-R helps learners "know about it," that is, it aims to develop learners' consciousness at the level of understanding. He writes, "[w]hereas practice is primarily behavioural, consciousness-raising is essentially concept-forming in orientation." It helps learners form mental representations about the forms and functions of grammatical structures. Following this, R. Ellis' (2002: 168) definition of C-R makes references to learners' declarative knowledge: "[C-R] involves an attempt to equip the learner with an understanding of a specific grammar feature – to develop declarative rather than procedural knowledge of it."

[19] Rutherford (1987: 104) writes, "It is a concept of the role of C-R that first of all has relatively little to do with the answer to the question 'How does one form a particular construction?' and a great deal to do with the answers to the questions 'What is it that one does with this bit of grammar?,' 'What has to be done grammatically in order to have this block of information in position X?'."

A related feature of C-R is that it aims to stimulate other levels of consciousness, such as *noticing* and *attention*. Naturally, as the term 'consciousness-raising' indicates, the main objective of C-R procedures is to raise learners' consciousness, including its lower levels (i.e. noticing and attention), and higher levels (i.e. understanding). In an early definition of the C-R concept, Rutherford and Sharwood Smith (1985: 274) refer to it as "the deliberate attempt to draw the learner's attention specifically to the formal properties of the target language." This is also reflected in the definition formulated by Hinkel and Fotos (2002: 6), who state that C-R is a type of grammar teaching through which "awareness of a particular feature is developed by instruction even if the learners cannot use the feature at once." R. Ellis (2002: 168) notes that in C-R procedures, the targeted L2 feature is isolated so as to attract learners' focused attention to it.

The learners' *active role* in processing the target grammatical material is another important part of the definitions. In this way, as explained by R. Ellis (2016: 129), the C-R approach differs from traditional grammar teaching, which assumes teachers' direct intervention in learners' interlanguage development. The demands of C-R tasks require learners themselves to infer vital information about the structure, and form their mental representations. In the words of R. Ellis (2015: 202) , C-R is "instruction based on tasks designed to help learners to construct their own explicit rules about structural features." What follows from this is that the main factor differentiating C-R from more conventionally defined conceptions of teaching it that it is "considered as a *facilitator* of language learning, or as the means rather than the end" (Rutherford 1987: 18, original emphasis). Offering facilitation to the process of learning rather than giving ready solutions to learners, C-R pedagogy is in principle *learner-centered*. Its aim is to engage a learner's mental operations, and it addresses the individual dimension of learning, enabling learners to process material at their own pace and in their own ways. Thus, the learner perspective and the role of a learner's *active involvement* in the discovery of patterns and principles are important features underlying C-R. R. Ellis (2002: 168) notes in attempting to form a mental representation of the target structure, learners are expected to expend at least a certain amount of *intellectual effort*, which is conducive to learning. R. Ellis (2002: 163) suggests that the intellectual effort can be stimulated by different kinds of operations, such as underlining, performing grammaticality judgments on the data, making categorizations of grammatical features, along with other possibilities.

Furthermore, in the case of a lack of full understanding of a structure on the part of the learners, a certain kind of clarification, consisting of additional L2 examples or explanations, is provided. This further stimulates learners' involvement with the learning task. Their effort may be concluded with the formulation of a metalinguistic rule, although, according to R. Ellis (2002: 168), this is not necessary.

Long and Robinson (1998: 17) note that displaying at least some consideration for a learner's *internal syllabus* is an advantage of C-R over other, less learner-centered types of FonFs. In relation to this, Rutherford (1987: 97) emphasizes that in implementing grammatical C-R, certain principles need to be taken into account. One obvious and highly significant principle is that learning should always be linked to what has already been learned. This prior knowledge embraces both the unconscious knowledge of universal language processes and the current knowledge of the L2 being learned. Another basic principle is that C-R procedures should be closely related to the nature of *processes* involved in language learning. Furthermore, the content selected for C-R needs to be *compatible* with language organization.

Rutherford (1987: 154) notes that in the C-R approach, "hypothesizing, projecting, generalizing, and reanalyzing" are crucial processes through which learners develop their knowledge of a structure at their own pace, following their own "learning schedule." In a controlled way, C-R provides data for stimulating *hypotheses testing* and creating generalizations about how the L2 works. This function of C-R is of particular significance in instructional language learning contexts, where opportunities for naturalistic exposure to L2 data are limited. Larsen-Freeman (2003: 84) explains that three processes, namely deduction, induction, and abduction, are particularly relevant in forming and testing hypotheses about grammatical patterns. Deduction is based on applying a given set of principles, induction consists in revealing patterns in input, and abduction serves as a complementation to induction by suggesting a possible explanation about the revealed phenomena. Abduction thus involves an attempt to understand the forms encountered in the input, and to make sense of how they fit within the interlanguage system.

Rutherford (1987) also highlights the *process*, rather than product, orientation of C-R. Since language acquisition is a cyclical, rather than linear, process, it requires constant engagement with data analysis, exemplified by the previously mentioned formulating and testing of hypotheses,

and arriving at generalizations. The process-orientation aligns with a *top-down* view of grammar; Rutherford (1987: 104) explains that instead of perceiving grammar as a fixed set of elements, it is seen as an "online processing component of discourse."

Moreover, the open-endedness and process-orientation in C-R is highlighted in *learning how to learn*, or, in other words, the development of learning strategies in the course of learning. Being actively involved in inferring information from L2 data, hypothesizing and generalizing, learners may discover effective ways of approaching new material, and develop the skill of managing their learning. As summed up by Rutherford (1987: 153), instead of viewing grammar as being "in command of learning," C-R puts it "in the service of learning."

The presence of *input* on the basis of which learners can process and construct their L2 knowledge is another important characteristic of C-R procedures. R. Ellis (2002: 168), describing the C-R approach, highlights that "learners are provided with *data* which illustrate the targeted feature and they may also be supplied with an *explicit rule* describing or explaining the feature." He further explains that different types of input can be appropriate for C-R, both authentic and non-authentic, gapped and non-gapped, oral and written.

Candlin (1987: iii), discussing the pedagogical implications of the concept of C-R, makes the point that in many ways, it is definitely congruent with the main principles of the *communicative approach*. It focuses on learner involvement in a learning task, and on the development of "the learner's metacommunicative and metacognitive awareness." Specifically, C-R activities aim to enhance the skills of "judgement and discrimination in respect to the semantic and discoursal demands on the grammatical structures of the target language," in this way also developing learners' *reflectivity* in trying to understand form-meaning mappings of grammatical structures. Candlin further asserts that C-R activities prepare learners for productive language use by encouraging them to think about how their utterances fit into broader discourse, and providing them with a wider repertoire of structures to convey their intended meanings. Similarly, Rutherford (1987: 97) points out that C-R highlights the relationships between *syntax, semantics, and discourse*, as effective C-R activities involve all these three areas. In this way, such activities are contextualized and the language use is shaped by "extragrammatical forces," namely, discourse and semantics (Rutherford 1987: 100). Larsen-Freeman (2003: 99), however, indicates

that raising learners' awareness through C-R activities does not directly lead to them being able to use the structures in communication. C-R is an important step, but it is meaningful practice that helps learners consolidate and deepen their understanding, and achieve fluency. Explicit grammar instruction, which can involve C-R procedures, facilitates the processing of conceptual representations in learners, but it is naturalistic settings that are most beneficial for providing exposure and fostering communicative language use (Ansarin and Arasteh 2012; R. Ellis 1994; Schmidt 1995). Decontextualization (e.g. in C-R tasks) is possible as long as it does not constitute an end in itself, but as a means to effective learning, and is embedded within a communicative syllabus (R. Ellis 1993a). It is therefore important that C-R and communicative practice, notwithstanding the crucial differences between them (R. Ellis 2002), can be combined for fully effective instruction. It is natural for C-R to be part of the presentation stage and provide learners with a clear idea of a grammatical structure at the level of understanding its form and meaning, and to be later followed by practice activities which give learners opportunities for repeated production of the form and the development of procedural knowledge.

The abovementioned characteristics of C-R, which make it possible to integrate a systematic treatment of formal features of the L2 within a communicative syllabus, seem to reveal certain didactic implications concerning the shape of *specific C-R options* and their position in the L2 learning process. Providing a broad perspective on the possible applications of C-R, Sharwood Smith (1981: 161-162) explains that C-R can refer to different ways of approaching grammar pedagogy. He lists and describes four basic types of C-R activities distinguished on the continua of explicitness and elaboration. Thus, activities can vary according to how explicit they are, from subtle, indirect cues that might attract the learner's attention, to explicit options, in which structures are directly pointed out and talked about. They can also be more or less elaborate, depending on how much time and space is devoted to a given activity. The four types of C-R options thus comprise the following configurations:

- *Type 1*: activities with *high levels of explicitness* and *low levels of elaboration*, for example, in the form of concise prescriptions, often with the use of metalinguistic terminology.[20]

[20] Sharwood Smith (1981) makes the point that this procedure is "safer" provided that the learner is familiar with metalinguistic terms, at least in the L1, but if previous

- *Type 2*: activities with *low levels of explicitness* and *low levels of elaboration*, for example, in the form of brief, indirect clues which may be linguistic or not, and are usually embedded in some naturalistic discourse and task. This kind of C-R may give learners a greater feeling of self-discovery, but it may be necessary to limit it to the most visible regularities or to combine it with other techniques.
- *Type 3*: activities with *high levels of explicitness* and *high levels of elaboration*, for example, in the form of breaking down explanations into easier-to-handle stages which clarify the relevant differentiations and enable the learner to make decisions about how to use the structure.
- *Type 4*: activities with *low levels of explicitness* and *high levels of elaboration*, for example, teacher's explicit guidance being gradually reduced through the use of "symbolic devices" (p. 162) which, in a constrained form, remind learners of what was previously explained to them in explicit terms.

Sharwood Smith (1981: 162) further explains that these four types of C-R illustrate a broad range of orientations in grammar pedagogy and thus highlight the fact that C-R allows for high levels of flexibility in "the time and space devoted to drawing attention to the structures in question."[21]

Rutherford (1987), also acknowledging that C-R can take multiple forms, provides suggestions as to the place of grammatical C-R in the ELT curriculum and syllabus. As an overriding principle, he stresses the need to expose a learner to a sufficient amount of input, on the basis of which hypotheses can be tested and generalizations can be drawn. More specifically, Rutherford (1987: 150-151) makes the following three suggestions for implementing C-R procedures:

- An initial step is selecting the *aspects of the grammatical system* for teaching, taking into account that they should provide enough

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grammar instruction excluded the use of metalinguistic terminology, the effectiveness of such procedures can naturally be rather low. Besides, their effectiveness may be lower for various psychological or didactic reasons; in some cases, direct prescriptions can appear to be vague and ambiguous.

[21] This flexibility also means that C-R activities do not necessitate the verbalization of rules that learners become aware of, although encouraging learners to articulate rules, in a way that is consistent with their individual preferences and with the learning context, is an available option.

and the right kind of linguistic data to allow generalizations about the properties of a given structure.

- The following step is selecting *language content* which will illustrate, to a sufficient extent and at an appropriate time, the target aspects of the system. This will probably require considerable levels of individual differentiation, as not all learners in a group are at the same stage of L2 development, and the "personal learning schedules of individual learners vary a great deal" (Rutherford 1987: 159).
- The final step is devising *didactic procedures* which will focus learners' attention on the input and allow it to become intake. These procedures are, in fact, "the means for raising learner consciousness," also referred to as "modes of operation" (Rutherford 1987: 152).

Given the rather broad definition of C-R, its specific didactic options can involve a wide spectrum of specific options, ranging from natural occurrence of the target forms in authentic input at one end of the continuum to the formulation and articulation of explicit rules at the other. In the middle, between these two extremes, there are activities which highlight the target structures and stimulate some learner activity. In a recent publication, following Schmidt's (1994, 2001) understanding of consciousness, R. Ellis (2016: 130) suggests a typology of C-R activities for teaching grammar in relation to three different senses of consciousness: consciousness as noticing, as understanding, and as control. He puts forward the following classification of the types of C-R grammar activities:

- Consciousness as *noticing* (involving focal attention to linguistic features), for example, text enhancement, interpretation tasks;
- Consciousness as *understanding* (involving awareness of a rule or generalization), for example, grammar explanation, consciousness-raising task exemplified by discovery, problem-solving tasks;
- Consciousness as *control* (involving intentional application of explicit knowledge in using a form), for example, monitoring activities, text manipulation activities (such as gap-filling, sentence completion, etc.), text creation activities (R. Ellis 2016: 130).

Larsen-Freeman (2003: 93) conceptualizes C-R instruction possibilities as a continuum, at one end of which there are options such as input enhancement and input flood, characterized by low explicitness and obtrusiveness, and at the other end – explicit rule articulation. C-R tasks

which contain elements of grammatical problem-solving are placed somewhere in the middle of this continuum. Following this line of reasoning, R. Ellis (1998, 2012, 2014) notes that C-R has both direct (realized as a provision of rules and explanations) and indirect (involving learners themselves in rule getting) dimensions. He expresses a preference for the latter kind of C-R as more beneficial for learning (R. Ellis 1998: 48; 2014: 111). Similarly, Lee and Benati (2009: 74) acknowledge that C-R activities can be either *deductive* or *inductive*. Inductive C-R activities are characterized by the following traits: they focus on a specific form which is a source of difficulty to learners, they are based on language data (input) which will make it possible for learners to discover the rule or pattern, they require minimal language production from learners, and they make it possible to create a 'personal statement' in the learner's mind in order to facilitate the retention of the newly created explicit knowledge.

In the following subsection, a selection of indirect C-R techniques proposed by researchers (Benati and Lee 2010; R. Ellis 2002, 2016; Nassaji and Fotos 2011; Rutherford 1987; Sharwood Smith 1993, 2008, 2014; Willis and Willis 1996, 2007, and others) is presented. These techniques differ, but what they have in common is that they induce "grammatical exploitation by the learner" (Rutherford 1987: 160), with the aim of involving learners in their own exploration of grammatical structures and stimulating their internal processing in the course of learning. To this end, three groups of C-R didactic options will be presented: input-based, guided problem-solving, and task-based (mostly interaction-based) C-R.[22]

[22] It needs to be acknowledged that researchers (e.g. R. Ellis 2015; Larsen-Freeman 2003) have offered other classifications of options within FFI, within which C-R procedures have been included. R. Ellis (2015), for example, discusses text enhancement, processing instruction, task-based teaching, and C-R tasks, as separate groups of instructional options.

2.3.2. Input-based C-R options

Two groups of instructional procedures based on input will be reviewed here: one of them is related to *input enhancement*, and the other one – to *processing instruction*. Both of these groups of pedagogic interventions recognize the role of input in L2 learning.

The term 'input enhancement' was first introduced by Sharwood Smith (1991) as a substitution for the term 'consciousness raising.' As explained by Sharwood Smith (2014: 38), the term 'consciousness raising' appeared to him to be misleading because it implied that it was expected a priori that a learner's consciousness of given forms would be raised by a teacher's intervention, an assumption that cannot be made and fulfilled with any level of certainty. Instruction can create conditions for learners' consciousness to appear and develop, but what ultimate effect it will have always remains unknown. Han (2013: 314) further explains that the term 'input enhancement' does not suggest links with internal psycholinguistic change, but merely highlights external intervention. For this reason, Sharwood Smith decided that 'input enhancement' was a more appropriate term to refer to pedagogical attempts to draw learners' attention to certain linguistic features with the intention of making them more salient and therefore potentially available for further processing.[23]

Sharwood Smith (2014: 38) offers the following definition of input enhancement: "[t]he manipulation of selected (usually linguistic) features of the input deemed important by language teachers or teaching materials creators with the specific aim of speeding up development." Input enhancement is thus one of the basic ways of focusing learners' attention on the form of input, and, as such, of implementing the FonF approach. Its main objective is to make input more salient and thus more likely to become noticed by learners, and, possibly, further processed (Han 2013; Jourdenais et al. 1995; Piechurska-Kuciel 2005; Simard 2018).

R. Ellis (2016: 132) places input enhancement within the 'consciousness as noticing' part of grammatical C-R, because the perceptual salience helps learners notice and pay attention to the target features. The underlying as-

[23] The term 'input enhancement' was thus considered to be more precise that the broader term 'language consciousness raising' (Simard 2018: 2). However, the replacement of one term by the other by Sharwood Smith points to the fact that their underlying conceptions have much in common, and, in fact, input enhancement is often considered to be a frequently applied form of C-R (R. Ellis 2016).

sumption is that such manipulations to the input, by enhancing learners' chances of detecting the target features, are sufficient for learning to take place. According to Gass, Spinner and Behney (2018: 12), this sense of grammatical C-R instruction underlines the relevance of 'constructed salience' (which they define as "attention-drawing techniques"). This idea is the essence of various input enhancement techniques. There is a distinction, however, between externally created salience (e.g. by the teacher) and internally created salience (by the learners themselves), and the two do not necessarily overlap. Cho and Reinders (2013: 124) point out that factors which determine the degree of salience of certain features in the input can be of learner-internal, structural and external kinds, and include, for example, learners' interlanguage development, some features of the structure, such as its communicative usefulness, and the way the input is manipulated.

In order to achieve the effect of making learners notice the target features, perceptual input enhancement techniques can take different forms, either in the oral or written medium. Written input enhancement techniques include manipulation of frequency (e.g., input flood), manipulation of typography (font sizes and styles, etc.), the use of typographic cues which influence the visual salience of the input, and corrective feedback in discourse (e.g. repetition or recast) (Cho and Reinders 2013; Han 2013; Lee and Huang 2008; Sharwood Smith 1993). As summed up by Loewen and Inceoglu (2016: 90), "[v]isual input enhancement is carried out through modifying the physical appearance of specific elements within a text with typographical cues such as **bolding**, underlining, CAPITALIZING, *italicizing*, coloring, using different fonts, and different sizes, or a combination of these features." Example A comes from Nassaji and Fotos (2011: 41) and illustrates a visual textual enhancement technique.

Example A

The man **goes** with his dog to the park. He **brings** a ball with him to throw for the dog. When he **arrives** at the park, he **throws** the ball very far, and the dog **chases** after it. The dog **comes** back with the ball in his mouth. The man is very happy to see the dog come back with the ball. He **spends** the rest of the day throwing the ball for his dog to chase.

Oral perceptual input enhancement, as explained by Cho and Reinders (2013: 126), consists in manipulating listening materials through, for example, adding extra emphasis to certain features by raising the volume or

introducing pauses before and/or after the target form. This is illustrated by Example B, taken from Nassaji (2007, after Nassaji and Fotos 2011: 42).

Example B
STUDENT: And she catched her.
TEACHER: She CAUGHT her? [*Enhanced with added stress*]
STUDENT: Yeah, caught her.

Doughty and J. Williams (1998b: 236) call such techniques "relatively implicit, for they simply make forms perceptually salient without offering any explicit expectation as to what kind of processing should ensue." Sharwood Smith (2014: 39) refers to perceptual enhancement as "getting past the front door," stressing its assumed direct influence on a learner's perception. Suggesting a broader interpretation of perceptual input enhancement (as opposed to a "strict interpretation" of the term, which accepts only some alteration of input, such as a change or addition to the original input), Cho and Reinders (2013: 125) list technological and visual enhancement as ways of enhancing the salience of input. Technological input enhancement can be achieved by using modern technology to direct learners' attention to the target structure. This may involve transcribing the input on a computer and the insertion of symbols which require pressing additional keys to focus the learners' attention on L2 spelling. Visual enhancement involves the use of visual materials, e.g. pictures, to enrich the input.

Input enhancement can also involve more *explicit* procedures. Gascoigne (2006: 552), apart from typographical alterations, lists the following examples: "explicit discussion of target forms, metalinguistic descriptions, negative evidence via overt error correction, (…) clarification requests, processing instruction, garden-path techniques (inducing and correcting overgeneralization errors)." In a similar vein, Sharwood Smith (2014: 39-40) and Truscott and Sharwood Smith (2014: 358-359) distinguish three basic types of input enhancement in relation to a teacher's intention: apart from *perceptual* enhancement, they also discuss the role of *conceptual* and *affective* types of enhancement. The aim of conceptual input enhancement is to promote learners' understanding of input. This understanding can focus either on learners' interpretation of some features, for example phrases such as "'queasy,' 'industrial quality' or 'high five'" (Sharwood Smith 2014: 39), or on making sense of how the L2 grammatical system works, for example, by providing an explicit explanation or a

rule and triggering metacognitive reflection. Finally, affective enhancement targets a learner's attitudes, emotions, and values in relation to the L2. This can make use of appropriate contextualization in order to positively influence the subjective experience of making use of the target forms, both in the lesson and outside the classroom. These three types of enhancement are often combined by teachers to increase the effectiveness of instruction[24]. Example C (Sharwood Smith 2014: 40) illustrates such a combination.

Example C

The teacher 'explains' (attempted conceptual IE), in an 'exciting and stimulating' manner (attempted affective IE), the way YES/NO questions are formed in English, 'highlighting' (attempted perceptual IE) the **DO** form wherever it occurs, pointing out that in sentences like 'They *do* (attempted perceptual IE) not know' 'do' is meaningless and bears no relation to the 'doing' as in 'they do a lot of work' (attempted conceptual IE).

Sharwood Smith (2014: 50) and Truscott and Sharwood Smith (2014: 358) explain that input enhancement is most likely to influence the perceptual system, which is particularly sensitive and the easiest to manipulate. This is the function of perceptual enhancements, thanks to which appropriate visual or auditory representations are activated and chances of further linguistic processing are created. In order to promote acquisition and help learners conceptualize their syntactic systems, metalinguistic conceptual enhancement provided at a post-linguistic stage is needed. It can consist in conveying explicit information about language form with the aim of helping learners make sense of the structure. Finally, learners' positive emotions involved in the learning experience can contribute to increased activation levels of different elements of the system, thus making features of the input more salient to learners (Sharwood Smith 2014: 53).

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[24] The three possibilities for input enhancement are important within the MOGUL framework devised by Truscott and Sharwood Smith (2004, 2011). As was already stated in Chapter 1 (in subsection 1.3.4.), the MOGUL framework, because of its modular character, presupposes collaboration (and competition) among different kinds of representations: perceptual (visual and auditory systems), linguistic (phonological and syntactic systems), conceptual (semantic and pragmatic meaning), and affective (a system of values and emotions).

Processing instruction, which is considered in the present discussion as another instructional option within input-based C-R, is derived from the insights of Input Processing theory. VanPatten (2017a: 170) explains that while "input processing is a 'bottleneck' where rich input data is culled to deliver intake data to UG and the internal mechanisms responsible for creating a linguistic system", the aim of processing instruction as a pedagogic intervention is to help learners process input in an optimal way.[25] Its learner-centeredness and process-orientation, and its primary aim of assisting learners in making the most of input data in figuring out form-meaning mappings, are the main rationale for considering processing instruction as a form of C-R. This line of reasoning is also evident in VanPatten's (1996: 85) explanation, according to which processing instruction "does not seek to 'pour knowledge' of any kind into learners' heads; it assists certain processes that can aid the growth of the developing system over time." Referring to Rutherford's (1987) description of C-R as aiming to facilitate the mental processes underlying the acquisition of grammar, VanPatten (1996: 85) acknowledges that "[i]n a real sense, processing instruction is a type of 'consciousness raising'," and concludes that "Rutherford would not have much problem in considering processing instruction as one manifestation of grammatical consciousness-raising." However, VanPatten (1996) further explains that although some kind of conscious knowledge is contained in processing instruction, its ultimate aim is to enrich and facilitate learners' intake, not to raise their consciousness about a grammatical structure. It is, therefore, a specific instantiation of the C-R approach. This view is also reinforced by Lee and Benati (2009: 75-76), who find processing instruction to be largely congruent with the main tenets of C-R instruction.

As explained by Benati and Lee (2010: 32-33), the main aim of processing instruction is to "guide and focus L2 learner's attention when they process input; to instill in them target language appropriate processing strategies." As such, it is primarily concerned with two sub-processes: making *form-meaning* connections, and *parsing*. The former sub-process consists in an appropriate matching of meaning to a given form and is in line with the first input processing principle (VanPatten 2007, 2015), namely, of the primacy of meaning. The latter sub-process involves ap-

[25] The main premises of Input Processing, upon which processing instruction is based, were discussed in Chapter 1, in subsection 1.3.1.

propriate mapping of the syntactic structure onto an utterance, i.e. the subject (agent), the verb, and the object, and follows the second input processing principle, namely that of the first noun primacy.

Perhaps the most important presumption in processing instruction is that leading learners to process the target form can generate its further processing, and ultimately lead to the establishment of correct form-meaning connections. Thus, the 'processing' element in this kind of intervention is what mainly distinguishes it from input enhancement, at least in the sense of perceptual input enhancement. VanPatten (2004: 6) defines processing in the following way:

> processing refers to making a connection between form and meaning. That is, a learner notes a form and at the same time determines its meaning (or function). The connection to meaning may be partial or it may be complete (for example, given the complexity of verb endings in Spanish, a learner may "realize" that a form denotes pastness but has not grasped the aspectual meaning also encoded in the inflection).

As is suggested by this quotation, processing instruction activities take into account learners' limited *attentional capacity*, as a result of which only part of the input can be further developed, and hence only partial representations of form-meaning connections can be established in the learner's mind. In order to enhance their chances of converting input into intake, input is modified to make it more feasible for learners to acquire form-meaning mappings from it. Following this, VanPatten (1996, 2004, 2009, 2017a) repeatedly stresses that this intervention is not focused on merely helping learners notice the target features, but on making them change their *strategies of processing* these features.

VanPatten (1996, 2002, 2009, 2017) and Benati and Lee (2010) explain that the best way to make learners process input in the most appropriate way, that is, in a way which will lead to an effective formation of form-meaning mappings, is through explicit explanations about the target structure and about the processing strategies provided at the beginning of a teaching session. In Example D, a sample explanation of the past simple tense together with information about a recommended processing strategy (Benati and Lee 2010: 35) is given.

Example D

Explicit information
The past simple tense is one of the tenses most used to talk about events in the past. It does refer to finished actions and events. Very often the English Past Simple Tense ends in ***–ed:***
I invited John for lunch
I played tennis with Paula
When you talk about a finished time in the past, the English Past Simple Tense is often accompanied by a temporal adverb.
Yesterday I smoked 20 cigarettes

Information about the processing problem
DO NOT RELY ON THE TEMPORAL ADVERB TO UNDERSTAND WHEN THE ACTION TAKES PLACE AS SOMETIMES YOU CAN HEAR A SENTENCE WITHOUT THE TEMPORAL ADVERB.
YOU MUST PAY ATTENTION TO THE TENSE ENDING TO UNDERSTAND WHEN THE ACTION TAKES PLACE.
IN THE CASE OF DESCRIBING PAST EVENTS PAY ATTENTION TO THE ENDING OF THE VERB: –ed

Explicit explanation is followed by a series of *structured input* activities. Structured input is input to which the learner attends primarily to meaning, but at the same their attention is manipulated by input modifications in such a way that they are made to use more optimal processing strategies. Wong (2004: 38-40), following VanPatten's (1996) recommendations, outlines certain guidelines which should be followed in designing such activities. These are:

1. *Present one thing at a time.* Because learners' capacity to process information is limited, only one form and/or function should be the focus of instruction in a single session.
2. *Keep meaning in focus.* Learners must be exposed to input with referential meaning.
3. *Move from sentences to connected discourse.* Because of limited information processing capacity, the initial stages should be focused on sentences as input.
4. *Use both oral and written input.* Both modalities are needed to cater for individual differences and for the needs of the learners.
5. *Have learners do something with the input.* Following the main principles of teaching language for communication, a need has to be created for learners' attending to input and responding to it.

6. *Keep the learner's processing strategies in mind.* It is important to help learners replace ineffective processing strategies with effective ones, therefore, optimal strategies need to be identified before structured input is constructed.

In order to achieve the most efficient processing of input, VanPatten (1996, 2002, 2009, 2017a) distinguishes two basic types of structured input activities: *referential* and *affective*. Referential activities, which have right or wrong answers, induce learners to abandon ineffective processing strategies, and replace them with more effective strategies in order to link linguistic features with their meaning. When doing such activities, learners focus on the form in order to get the meaning and demonstrate understanding by selecting the right option. Example E presents a referential activity designed for L1 English learners of L2 Spanish (VanPatten and Cadierno 1993: 46).

Example E

In the following, select the correct interpretation of the sentence. Keep in mind that Spanish has a flexible word order and does not necessarily follow subject-verb-object order like English.

1. *Me llama frecuentemente mi hermana.*
   Who calls whom?
   a. I call my sister.
   b. My sister calls me.
2. *¿Te escriben los padres?*
   Who writes to whom?
   a. Do you write to your parents?
   b. Do your parents write to you?

On the other hand, affective activities do not have right or wrong answers. In these activities, learners make a personal, affective response to a clue, showing that they have understood its meaning. Affective activities usually follow referential ones. Example F, taken from VanPatten (2009: 55-56), illustrates an affective activity, also made for learners of L2 Spanish.

Example F

Select a female relative and write her name and relationship to you below. Then check off any statements that are true for you.

Nombre: _____ Relación: _____

La admiro.
La respeto.
La detesto.
La llamo con frecuencia.
La veo cuando puedo.
La entiendo bien.

Now select a male relative and do the same.
(…)

Compare your responses. With whom do you have a better relationship? Do you see these people in the same way?

VanPatten (2009: 56) further explains that, unlike referential activities, where the aim is to induce the correct processing strategies, in affective activities learners continue the 'concentrated processing' that was already induced at the preceding stage, and the design of these activities ensures that the sentences are processed correctly.

Input-based instructional procedures constitute an important area of FFI and C-R. It can be seen from the principles of input enhancement and processing instruction, as well as the examples of activities provided in this subsection, that these types of interventions often contain an element of discovery or problem solving. This aspect of grammatical C-R will be the focus of the following subsection.

2.3.3. C-R and guided problem-solving

The features of the C-R approach suggest that it typically includes an element in which the learner is required to *induce* information about the target form. Thus, Willis and Willis (1996) refer to grammatical C-R as *guided problem solving*, suggesting that it involves learners in inducing the underlying rules as a problem-solving task. Willis and Willis (1996: 63) express this idea in the following way:

> We can (…) provide them [learners] with guidelines and, more important, we can provide them with activities which encourage them to think about samples of language and to draw their own conclusions about how the language works. The general term for activities of this kind is consciousness-raising (C-R).

According to R. Ellis (2015: 202), the design of C-R activities helps learners arrive at the rule underlying the target structure and "construct an explicit representation" of it. This is often achieved through a presentation of appropriate language data together with guidance in performing certain operations which will allow learners to analyze the data and arrive at the correct representation. In this way, as pointed out by R. Ellis (2002: 173), C-R "accords with progressive views of education as a process of discovery through problem-solving tasks." The role of C-R discovery activities in providing guidance to learners in focusing on grammatical forms and in using various strategies to make discoveries about them on their own is also underscored by Kilfoil (1990: 21), Mishan (2005: 38) and Newby (2013: 525). C-R allows learners to *notice the gap* between the forms in input and their own interlanguage, and reconciling the differences between these two can promote acquisition. In the longer term, the discovery approach in C-R can lead to learners' enhanced language awareness, making them more sensitive to the grammatical structures they encounter. Thornbury (2011), pointing to the similarities between C-R and discovery learning techniques, writes, "[i]n recent years, the concept of (guided) discovery learning has tended to merge with the notion of consciousness-raising (CR) – the common ground being that activities are structured in such a way as to invite learners to develop their own hypotheses about the targeted feature of the language."[26]

C-R activities of this kind seem to be examples of 'linguistic problem-solving,' as differentiated from communicative problem-solving. This kind of pedagogical option is defined by Bourke (1996: 13-15) as activities with a linguistic, often grammatical, problem to be solved by learners. C-R taps into a natural tendency to form hypotheses, discover, and re-

[26] Svalberg (2013: 5602), on the other hand, while juxtaposing discovery learning and C-R as two pedagogic options associated with a "language awareness approach", pinpoints certain subtle differences between them. According to her, C-R activities are characterized by greater open-endedness which lends itself to learners' own interpretations and discussions of given phenomena, while discovery techniques are usually concentrated on arriving at the right solution in inducing a given grammatical rule or pattern.

structure existing knowledge, stimulating learning which requires deeper processing, leads to better retention, and generally "challenges the learner to address questions, evaluate evidence, and infer generalizations based on the data observed" (p. 15). Bourke (1996: 17) emphasizes the connection between C-R and problem-solving by stating that "[i]n any problem situation the first step is awareness-raising or 'noticing'," and explains that problem-solving requires certain 'perceptual frames' in the form of certain types of discourse (e.g. a dialog, a narrative, etc.), which provides an illustration of the use of a given form and fosters hypothesis formation.

Within this strand of instructional procedures, Rutherford (1987: 161-162) suggests using activities based on judgment, discrimination and discernment. Such techniques consist in learners' formulating judgments on grammaticality, semantic interpretations, presuppositions, discourse appropriateness, etc. As noted by Rutherford (1987: 161), it is best if learners can judge their own production, and if the evaluated samples are embedded in the original context. In Example G, learners identify errors with English SVO word order and correct them:

Example G

1. In lake Maracaibo was discovered the oil.
2. After a few minutes the guests arrived.
3. In my country does not appear to exist any constraint on women's rights. etc.

(Rutherford 1987: 161)

In the following technique (Example H), learners discriminate among semantic interpretations based on the understanding of the meaning behind grammatical forms in a brief text.

Example H

The passing of the bill has given rise to further bitterness among the various linguistic communities in the province.

1. The various linguistic communities are bitter.
2. Bitterness caused the bill to be passed.
3. The province is bitter at the linguistic community.

(Rutherford 1987: 162)

Rutherford (1987: 164-166) also gives examples of 'task completion' and 'problem solving' activities, which incorporate elements of language production and reflection. As a result of this, apart from executing judgment and discrimination, learners have to additionally perform some operations

based on their intuitions (Rutherford 1987: 164). In Example I, learners make decisions about what grammatical realizations are required to express meanings with the use of subordinators and conjunctions. In this way, their attention is drawn to grammatical realizations of semantic relations.

Example I

I wasn't hurt / I was wearing my seat belt.

1. … because ...
2. … because of ...
3. … Therefore, …
4. … As a result, …
5. … for the simple reason that …

etc.

(Rutherford 1987: 166)

Such activities address learners' sensitivity to form-meaning connections through highlighting the importance of grammatical choice for discourse considerations.

Rutherford (1987: 167-168) also discusses the role of activities based on the principle of 'propositional cluster,' the aim of which is to raise learners' consciousness through introducing grammatical changes determined by discourse requirements, which also fall into the discovery-learning C-R category. In such activities, learners are presented with "propositional clusters" consisting of the "verb + associated noun" chunks, and change (or 'grammaticize') them into SVO sentences. In this process of grammaticizing those clusters, learners see why grammatical changes are needed in a given context; thus, their awareness of extra-grammatical factors, such as discourse demands, is raised (Rutherford 1987: 167). Example J illustrates the 'propositional clusters' technique. The learners' task is to construct sentences using the provided items, thus completing the sketched discourse.

Example J

1a. On stage appeared a man and a child.
b. sing – child – song
2a. Last on the programme were a song and a piano piece.
b. sing – child – song

(Rutherford 1987: 167)

In Example J, although 1b and 2b look identical, the clues in 1a and 2a, because of the contextual information provided in them, lead to the for-

mulation of completely different sentences (1b. *The child sang a song*, 2b. *The song was sung by a child*). Among the values of such techniques, Rutherford (1987: 168-169) lists learners' mapping of semantic information onto a syntactic structure, raised sensitivity to discourse considerations in the structure of sentences, and awareness of "grammatical consequences of lexical choice."

Willis and Willis (1996: 69) also provide numerous ideas for discovery-based C-R techniques. One group of such techniques involves identification/consolidation, and consists in learners' looking for "a particular pattern or usage and the language forms associated with it" in a set of language data. In 'hypothesis building/checking' activities, learners are guided toward generalizations about language patterns and check their findings on the basis of further language data. 'Cross-language exploration' activities require an identification of similarities and differences between grammatical patterns in the languages they know, for example, between the L1 and the target language. In the 'reconstuction/ deconstruction' technique, learners manipulate available samples of language in order to discover the underlying patterns in them. 'Recall' activities require them to recall and then reconstruct parts of texts in such a way that the targeted significant linguistic features are emphasized.

R. Ellis (2002: 172-173) provides an example of a C-R problem-solving task which aims to raise learners' awareness of the difference between 'since' and 'for'. It is an inductive task in which learners are guided to discover the rule for the use of these two prepositions. An abridged version of the activity is provided below as Example K.

Example K

1. Here is some information about when three people joined the company they now work for and how long they have been working there.

Name	Date Joined	Length of Time
Ms Regan	1945	45 yrs
Mr Bush	1970	20 yrs

2. Study these sentences about these people. When is 'for' used and when is 'since' used?
   a. Ms Regan has been working for her company *for* most of her life.
   b. Mr Bush has been working for his company *since* 1970.

3. Which of the following sentences are ungrammatical? Why?
   a. Ms Regan has been working for her company for 1945.
   b. Mr Bush has been working for his company *for 20 years*.
4. Try and make up a rule to explain when 'for' and 'since' are used.
5. Make up one sentence about when you started to learn English and one sentence about how long you have been studying English. Use 'for' and 'since'.

R. Ellis (2002: 172) sees the value of this kind of activities in that they intentionally address the forms that are difficult for learners, they carefully guide learners in their discoveries, and they give learners an 'idea' of the targeted form with minimalized production. Additionally, the form is used in a personalized context, which promotes its retention.

2.3.4. Task-based C-R options

As was made clear by the discussion of the characteristic features and possible pedagogical options provided in the previous subsections, C-R activities are by no means confined to syllabuses resembling structural ones.[27] According to Schmidt (1995: 46), many researchers (e.g. Ellis 1994) describe an optimal learning environment as allowing learners to process semantic and conceptual representations through explicit study, and to develop communication skills through exposure to natural language use.

Task-based language teaching (TBLT) is a good example of communication-based methodology which can incorporate a focus on the structure of input and learners' output. It provides opportunities for interaction, which promotes acquisition through combining a focus on *meaning* with a focus on *form* (Fotos and R. Ellis 1991; Long 2016; Skehan 1998, 2013; Willis and Willis 1996, 2007). East (2017: 416-417) notes that although TBLT seems to perfectly fit FFI, teachers are often confused about the amount and kind of grammar teaching that can be incorporated into it in

[27] Schmidt (1995: 46) explains that although claims for incorporating C-R into L2 learning and teaching are sometimes interpreted as an attempt to return to the most traditional, grammar-only teaching methods, this is not the case. On the contrary, they can constitute part of any pedagogical practice in which there is a place for FFI in many different types of activities, and usually represent a combination of meaning-orientated and system-oriented approaches.

order to ensure attention to grammar and yet maintain the primarily meaning-oriented interactional character of tasks. It seems that C-R can be a viable pedagogical solution to such dilemmas.

Willis and Willis (1996), Skehan (2013) and Kuiken (2018) see the most important strength of C-R activities embedded in a TBLT framework in that they combine a focus on formal features of grammatical structures with their meaning-oriented use, provided by a primarily communication-oriented learning context. Skehan (2013: 170) explains that one of the dangers generally associated with TBLT is that being preoccupied with accomplishing the task, and with using communication strategies in order to get their message across, learners may not pay sufficient attention to form, and, as a result, while developing their transaction skills, they may not get enough practice in controlling their interlanguage system. By employing C-R tasks, TBLT is "moderated in some way to ensure that form retains some level of focus, and so there is potential for change, growth, and greater accuracy" (Skehan 2013: 170).

Willis and Willis (2007) and Skehan (1998, 2013) can see a place for C-R at various stages of a TBLT cycle,[28] with the aim of enhancing both input and output noticing. At the pre-task stage, involving learners in strategic planning gives them an opportunity to prepare for performance with the use of language resources "at the limit of their interlanguage systems" or even beyond. Moreover, they have a chance to notice a gap between what they are able to say and what they would like to say (Skehan 2013: 174). According to Skehan (1998), C-R activities at this stage can take the form of text exploration activities, where learners concentrate on a given aspect of L2 grammar, possibly with the use of input enhancement techniques. Pre-task discussions and brainstorming activities, which direct learners' attention to some features of the formal properties of the L2, are another possibility. C-R activities at this stage can "mobilize and recycle language and may also change the processing load that the task contains" (Skehan 1998: 139). Willis and Willis (2007: 131-132) note that while preparing learners for the communicative task, the teacher can make certain grammatical and lexical forms more noticeable and memorable for learners; possible C-R activities at this stage can thus include working

[28] Willis and Willis (1996, 2001) outline the following stages in a TBLT framework: a pre-task stage, a task stage consisting of a task-planning-report cycle, and a post-task language-focus stage.

with texts to identify forms which express certain meanings (e.g. phrases used to give permission), or to find chunks of language containing certain words, such as pronouns or prepositions.

Three conditions contribute to learners' ability to focus on form at the during-task stage: online planning opportunities, control mechanisms resulting from task demands, and opportunities for feedback (R. Ellis 2005b; Skehan 2013).[29] However, processing demands are important here, because highly complicated tasks may make learners prioritize fluency over accuracy or complexity (the 'tradeoff' hypothesis), while tasks based on more familiar content leave more space for a focus on accuracy (Skehan 2014: 3).

The aim of the post-task stage is to give learners a chance to re-evaluate their work while completing the task and improve their knowledge and performance. For example, post-task activities may take the form of doing the task again publicly or transcribing a part of their recorded performance (Skehan 2013). Apart from task activities, post-task exploitation, defined as "the subsequent use for pedagogical purposes of language that has been made salient by a task" has a direct link with a focus on form (Skehan 2014: 8). Activities for this stage can include generation of further examples, problem-solving (e.g. contrasting two structures), metalinguistic treatment, C-R activities "to sensitize learners for the future to the choices available" (Skehan 2013: 178).

C-R activities can thus be embedded in a TBLT cycle, or an integration of C-R and TBLT can be realized in the form of *C-R tasks* (R. Ellis 2003, 2016, 2017a). An example of such a C-R task (Ellis 2016: 139) is presented as Example L.

Example L

A. *In the following sentences, why does 'give' have two grammatical patterns whereas* explain *has only one?*
   She gave a book to her father. (grammatical)
   She gave her father a book. (grammatical)\
   The policeman explained the law to Mary. (grammatical)
   The policeman explained Mary the law. (ungrammatical)
B. *Say whether each of these sentences is grammatical or ungrammatical. Your teacher will check tour answers.*

[29] Feedback which derives from communicative situations, in the form of requests for clarification, confirmation and comprehension checks, and recasts, is considered to be a factor that leads to interlanguage development (Mackey 2006; Skehan 2013).

1. They saved Mark a seat.
2. His father read Kim a story.
3. She donated the hospital some money.
4. They suggested Mary a trip on the river.
(…)

C. *Work out a rule for words like 'give' and* explain.
1. List the verbs in part B that are like *give* (i.e. permit both sentence patterns) and those that are like *explain* (i.e. allow only one sentence pattern).
2. What is the difference between the verbs in your two lists?

According to R. Ellis (2016: 38), the main advantage of such tasks is that they stimulate the generation of a rule by the learners themselves, and in this way lead to the development of analytic capacity, which is a feature often quoted as characterizing good language learners. The tasks evolve around a particular linguistic feature (grammatical or pragmatic) and it is this feature that serves as the topic of the interaction-based activity, with the main aim of helping learners understand a rule or a regularity. In this way, these tasks differ significantly from other kinds of tasks in the TBLT approach, because while other tasks are "built around content of a general nature, for example, stories, pictures of objects, opinions about the kind of person you like, C-R tasks make language itself the content" (R. Ellis 2003: 163).[30] Importantly, however, although the targeted linguistic feature is the main focus of the task, learners are not directly required to use it, only to reflect and hypothesize about it (R. Ellis 2012: 226). Angelovska (2017: 402), following R. Ellis' (1997) and Nunan's (1993) explanations of C-R procedures, points out that C-R tasks can thus aim at "increasing learners' awareness through interactive components and opportunities to engage in meaningful interaction and to negotiate meaning with the idea that interaction is essential to language acquisition." Within this perspective, C-R activities are based on learner interactions about the grammatical material that is the focus of their attention. Because of the

[30] For this reason, R. Ellis admits that according to some definitions of a "task" (for example, in Long's (2016) understanding of the concept), C-R tasks might not be considered to be *proper tasks* at all. However, in R. Ellis' opinion, they should be classified as tasks, because they stimulate genuine meaningful interactions among learners and tap into their immediate communicative needs; he states that linguistic features can be a viable topic for interactions, just like any other topic (R. Ellis 2017a: 511).

design of such activities, learners are not required to start using the L2 structures, but talk about their features. Although metalinguistic terminology is not necessary for this task, it may be useful. Nassaji and Fotos (2004: 136) stress that while in other kinds of tasks grammar is taught implicitly in communicative situations, C-R tasks, which make grammar the task content, make learners not only *notice* the target structures, but also *manipulate* them and, often, *induce* their underlying rules.

The particular C-R options are based on the same basic principles and often take the same form as other C-R activities discussed in this section, but, as noted by R. Ellis (2003: 166), a C-R task can also stimulate communication between learners. An abridged version of of an information-gap C-R task is given by Fotos and R. Ellis (1991: 626-627) and is presented here as Example M.

Example M

Directions

In groups, you are to study correct and incorrect sentences using different verbs. You all have different sentences. You must read your sentences to the rest of the group. Do not show your sentences to the other members! Only read the sentences as many times as necessary! Work together as a group and decide on the basis of the correct and incorrect sentences where the direct and indirect objects should be located. Fill out the rest of this page. Choose one student to report your results to the rest of the class. Please speak only in English during this exercise!

Sample sentences:

1. Correct: I asked my friend a question.
1. Incorrect: She asked a question to her mother.
2. Correct: Kimiko reviewed the lesson for John.
2. Incorrect: Kimiko reviewed John the lesson.
3. Correct: The teacher calculated the answers for the students.
3. Incorrect: The teacher calculated the students the answers.

Fotos and R. Ellis (1991: 611) see this activity as a grammatical C-R task, because it stimulates incidental production of the targeted structure, encourages an exchange of information, and poses a linguistic problem to be solved through interaction in the L2. It is in line with the principles of C-R in that learners derive rules from the linguistic data they are provided

with, and at the same time learners' problem-solving capacities in the context of L2 interaction are enhanced.
Recapitulating the section on grammatical C-R, it can be stated that:

- C-R is an instructional approach which aims to raise learners' consciousness at the levels of noticing, attention, understanding, and control.
- C-R is characterized by active involvement and intellectual effort on the part of the learner, engagement in forming and testing hypotheses when dealing with L2 input, and a process-orientation in learning.
- C-R is a flexible approach, embracing a variety of instructional options, among which input-based, guided discovery, and task-based options can be distinguished.

2.4. Research on the effectiveness of C-R instruction

This subsection will present a review of studies investigating the effects of C-R instruction on the learning of L2 grammar. Given the rather broad range of specific options available within C-R instruction and described in the preceding subsections, the studies selected for the present overview have addressed a variety of C-R procedures. The common traits behind all of them is that the pedagogical interventions share the key characteristics of the C-R approach: drawing learners' attention to the target features, with at least a certain degree of guided discovery. First, a selection of input-based studies will be reviewed, followed by an overview of studies on the effectiveness of guided-discovery and task-based grammatical C-R.

2.4.1. Research on input-based C-R

The input-based strand of grammar teaching has stimulated considerable interest among researchers. Because both input enhancement and processing instruction have been discussed in this chapter as options within grammatical C-R instruction, it seems appropriate to include a brief account of selected research findings within these two areas in the present overview of C-R empirical investigations.

Sharwood Smith (2014: 41) and Loewen and Inceoglu (2016: 91), after detailed revisions of several studies on the effectiveness of input enhancement for learning L2 forms, claim that no conclusive picture has emerged

from such research so far. Some studies have revealed positive effects (e.g., Lee 2007; Shook 1994; J. White 1998), others found negative effects (e.g., Overstreet 1998 reported its negative effect on meaning comprehension), and still others have not revealed any effects (e.g., Izumi 2002; Winke 2013; Wong 2003). Lee and Huang's (2008) very detailed and systematic meta-analysis of 16 visual input enhancement studies, however, makes it possible to draw certain conclusions about the effectiveness of various input enhancement procedures in terms of their contribution to learning L2 grammar. To begin with, Lee and Huang (2008: 308) note that textual enhancement, in its different forms, has been applied either as the only variable in studies (e.g., Jourdenais et al. 1995; Leow 2001), or as a procedure complementing other teaching options, such as provision of explicit rules (e.g., Alanen 1995), explicit instruction to focus on form (e.g., Shook 1999), communicative tasks (e.g., Leeman et al. 1995), or selection of different form-focused activities (e.g., Doughty 1991; Robinson 1997). The variety of variables in input enhancement studies makes drawing unified conclusions about their effects on acquisition more complex. However, one indication which seems to emerge from such studies is that any form of visual enhancement brings about more learning effects than input flood, which is a less explicit form of input manipulation.[31] Lee and Huang (2008: 321-322), as one way to establish the effectiveness of visual enhancement in relation to input flood, calculated the average effect sizes for such comparisons. The general effect size for the pre-test/delayed post-test gains was small (d = 0.22), and for the pre-test/immediate post-test gains it was medium (d = 0.55). It needs to be noted, however, that only three of the studies included delayed post-tests, and in the case of some studies relevant information necessary for the calculation of an effect size was missing. Three of the reviewed studies (Izumi 2002; Leow 2001; Leow et al. 2003) investigated learners' noticing of the target forms as a result of visual enhancement. The specific results of these studies are mixed: while Izumi (2002) reported enhanced noticing (but no enhanced intake), Leow (2001) and Leow et al. (2003) did not.

Other studies have also yielded mixed results, confirming the findings of Lee and Huang's (2008) meta-analysis. Table 7 contains a summary of some of them (in chronological order). For example, De la Fuente (2009) compared a C-R group with an input enhancement group in terms of the

[31] A similar conclusion, that more explicit input enhancement techniques bring more positive results, was reached by Spada and Lightbown (2008: 195).

acquisition of discourse markers in L2 Spanish. What distinguished these two treatment conditions was the level of explicitness: while the C-R group focused on enhanced input with the aim of reflecting on the forms (through providing translations of the target phrases into the L1), the input enhancement group focused on the same input, but with a meaning-oriented task (comprehension questions). The results of the post-test revealed that the more explicit treatment group (C-R) outperformed the less explicit one on a task checking the comprehension of the target forms and their retrieval in a translation task. Moreover, more metatalk was observed in the interactions within the explicit C-R group. Thus, the study demonstrated an advantage of explicit C-R over implicit, meaning-oriented input enhancement. De la Fuente (2009: 217) states, "C-R tasks seem more effective by focusing learners' attention on (…) forms, meanings, and uses, and consequently raising learners' awareness of such forms, and promoting explicit learning," at the same time suggesting that a combination of explicit and implicit form-focused instruction could bring the most beneficial effects.

Table 7. A summary of selected studies on input-based C-R options.

Researcher(s)	Aim	Methods	Participants	Results
De la Fuente (2009)	To compare the effects of C-R input enhancement (with L1 translations) with meaning-oriented input enhancement on learning discourse markers	Pre-/post-tests	24 L1 English adult college learners of L2 Spanish	The more explicit C-R task with enhanced input was more effective than the more implicit meaning-oriented enhanced input
Simard (2009)	To compare the effects of different kinds of typographical input enhancement on acquisition of forms	Pre-/post-/and delayed tests	188 11-12 y.o. Canadian L1 French learners of L2 English	The type of enhancement had an effect on intake
Hernández (2011)	To compare the effects of a combination of explicit instruction and input flood, and input flood alone, on learning discourse markers	Pre-/post-/and delayed tests	91 L1 English adult college learners of L2 Spanish	Both treatments had a positive effect on learning

Marsden and Chen (2011)	To compare the effects of referential and affective structured input activities	Pre-/post-/and delayed tests	120 12 y.o. Taiwanese learners of L2 English	Referential activities were more effective for learning gains, and resulted in some explicit knowledge
Wong (2015)	To compare the effects of structured input activities with other input-based options	Pre-/post-/and delayed tests	60 L1 English adult college learners of L2 French	Structured input activities had better effects on both interpretation and production tasks
Benati and Angelovska (2015)	To investigate the effects of processing instruction on learning in different age groups	Pre-/ post-tests	L1 German learners of L2 English: 36 children and 13 adults	Processing instruction was effective for both groups, but adults benefited more from more cognitively demanding tasks

Slightly different results concerning the effectiveness of implicit input flood techniques were yielded in Hernández's (2011) study, which compared the effects of explicit instruction combined with input flood, and of input flood alone, on L2 Spanish learners' use of the same target forms, discourse markers. The combined treatment group received an explicit explanation of the use and function of the target structures and was exposed to input flood, followed by comprehension questions, underlining the target forms in the input, and feedback from the teacher. The learners then performed communicative information gap activities, again followed by feedback, so their attention was drawn to the targeted features many times during the instruction sequence. The input flood group was exposed to flooded input, did the comprehension activities and underlined some forms, but not the target discourse markers. This was followed by communicative practice, but no explicit explanations or feedback were provided by the teacher concerning the targeted forms. Oral testing, at the post- and delayed post-test stages, revealed no differences in terms of the frequency of use of the target forms for the two treatment groups, indicating that both types of instruction were equally effective for promoting learners' use of discourse markers. Generally, as concluded by the researcher, the results revealed the effectiveness of rich input flood, com-

bined with communicative practice and feedback, in fostering the acquisition of grammatical forms. Like De la Fuente, Hernández (2011: 177) stresses the role of activities fostering learners' noticing and focusing their attention on the form-meaning connections of target features, in addition to exposure to meaningful input in effective form-focused instruction.

Simard (2009) investigated the effects of different kinds and intensity of typographical input enhancement on the acquisition of plural markers in L2 English by L1 French learners. Seven different enhancement techniques were used: italics, underlining, bolding, capital letters, color highlighting, a combination of these five types of enhancement, and a combination of three types: underlining, bolding, and capital letters. The results of post- and delayed post-tests showed that although all groups displayed some progress, the group that was exposed to enhancement in the form of capital letters and three typographical cues in the input outperformed other groups, thus indicating that the specific form of the enhancement and its intensity can have an influence on the intake of the target forms. Apparently, each type of enhancement has a specific "intrinsic saliency potential" (Simard 2009: 132), attracting different levels of learners' attention.

The results of research on the effectiveness of input enhancement, despite considerable variation caused by differences in the methodological designs of the studies, have demonstrated that input modifications can contribute to the conversion of input to intake. As concluded by Benati (2016: 70), even the most implicit of input enhancement options, namely input flood, can be effective in highlighting what is possible in the L2. Different types of textual enhancement have been found to facilitate the acquisition of L2 forms, although their facilitative effect is influenced by numerous factors, such as the readiness of the learner, resulting from proficiency level and developmental stage, the specificity of the linguistic form, and the intensity of instruction (Benati 2016: 74). The review of studies presented above seems to suggest a positive role of more explicit kinds of enhancement, or a combination of input enhancement with other, more explicit procedures, in the acquisition of L2 grammatical forms. To this end, processing instruction appears to be a viable option, because, apart from making learners notice the target features in the input, it guides them in creating connections between the forms and their meanings. The effectiveness of processing instruction in promoting L2 acquisition has been thoroughly researched.

One strand of research has focused on comparing the results of traditional teaching and *processing instruction*. The results have tended to demonstrate the beneficial effects of instruction which focuses on how input is perceived and processed by learners (e.g., VanPatten and Cadierno 1993; Cheng 2004; VanPatten and Wong 2004). Moreover, recent research has demonstrated the effectiveness of processing instruction in learning different languages, such as French (Wong 2004, 2015) and Japanese (Benati 2015), and for learners at different age groups, that is, children and adults (Benati and Angelovska 2015) (see Table 7 for a summary of some of these studies).

Other studies within the processing instruction research strand have investigated whether it was the explicit information or the structured input activities that contributed to the overall effectiveness of processing instruction as a way of teaching grammar. VanPatten and Oikkenon's (1996) results indicated that the structured input activities were responsible for the learners' learning gains, with a limited effect of the explicit instruction. Rejecting the role of explicit explanations in processing instruction, however, VanPatten and Oikkenon (1996: 507-508) admitted that the learners could have worked out their own rules about the target structure on the basis of the exposure to input and the activities they performed on it. Therefore, the role of conscious knowledge cannot be ruled out. The role of input structured activities, and not explicit explanation, as a significant factor in guiding learners to make correct form-meaning connections was also confirmed in later studies, conducted on different grammatical structures in different L2s (e.g., Benati 2004; Sanz and Morgan-Short 2004; Wong 2004). Following this line of investigation, Marsden and Chen (2011) compared the effectiveness of the two types of structured input activities, referential and affective, revealing the greater effectiveness of the referential activities in contributing to the learning gains. Moreover, it was discovered that the gains displayed characteristics of explicit knowledge, suggesting that the referential activities induced explicit knowledge in learners.

2.4.2. Research on discovery and task-based C-R

Selected studies on discovery-based C-R options and C-R tasks are summarized in Table 8. In one of the earliest studies on the effects of C-R, Fotos and R. Ellis (1991) investigated the effect of a grammar C-R task on intermediate college-level Japanese EFL learners' acquisition of English dative alternation

(indirect object placement). The task administered to the treatment group consisted of studying a list of correct and incorrect sentences illustrating the use of the target structure, followed by being familiarized with basic grammatical information about the structure and some metalinguistic terminology, and finally, formulating three rules on the basis of the previously encountered examples and explanations. Importantly, because of the task-orientation of these activities, learners collaborated and exchanged information in pairs or groups, and then reported the rules to the rest of the class. In a comparison group, the same grammatical material was taught in a traditional teacher-fronted manner. A GJT did not reveal significant differences between the C-R and traditional instruction conditions. Both groups progressed, although the gains at the delayed post-test were slightly lower for the C-R task group, which is explained by the researchers as resulting from possible incomplete understanding of the instructions, delivered entirely in the L2, and a lack of familiarity with the pair- and group-work format. Apart from promoting the acquisition of the target structure, the C-R task also stimulated high levels of interaction among the participants, both in the L1 and in the L2. Communicating about grammar included conversational modifications due to frequent negotiation of meaning and confirmation checks. In concluding the results of the study, Fotos and R. Ellis (1991: 622) stated that they presented a case for grammatical C-R tasks because of their influence on both learning the structure (evidenced by the gains) and on the increase in meaningful interactional turns.

Table 8. A summary of selected studies on discovery and task-based C-R options.

Researcher(s)	Aim	Methods	Participants	Results
Fotos and R. Ellis (1991)	To compare the effects of an inductive C-R task and traditional grammar instruction	Pre-/post-tests	90 L1 Japanese adult college learners of L2 English	The effects of both types of instruction were comparable; the C-R task stimulated interactional negotiations
Sheen (1992)	To compare the effects of C-R problem-solving tasks and traditional grammar instruction	Pre-/post-tests	10 L1 Japanese adult college learners of L2 French	The effects of both types of instruction were comparable

Fotos (1993, 1994)	To compare the effects of an inductive C-R task traditional grammar instruction and purely communicative tasks	Pre-/post-/delayed tests; recordings of negotiation tasks	160 L1 Japanese adult college learners of L2 English	C-R and traditional grammar teaching were equally effective in stimulating learning; C-R and communicative tasks were equally effective in stimulating meaningful interaction
Yip (1994)	To test the effects of C-R on learning	Pre-/ post-tests	10 learners of L2 English from various L1 backgrounds	C-R brought mixed results
Mohamed (2004)	To investigate learners' preferences for deductive or inductive C-R tasks	Evaluation questionnaire	51 adult learners of L2 English	No clear preferences for either C-R type were revealed
Eckerth (2008)	To investigate the effects of C-R tasks on learning the targeted and non-targeted grammatical structures	Pre-/post-/delayed tests	31 adults learners of L2 German with different L1 backgrounds	Learning gains were reported on both the targeted and non-targeted structures
Scott and De la Fuente (2008)	To investigate the role of the L1 in performing collaborative C-R tasks	Stimulated recall	12 L1 English learners of L2 French and 12 L1 English learners of L2 Spanish	Learners' L1s facilitated raising their consciousness of the grammatical features
Schleppegrell (2013)	To investigate the effects of metalinguistic C-R on noticing form-meaning connections	Observation	L1 Arabic elementary school children in an ESL setting	Metalinguistic C-R stimulated attention to target structures

In a following study, Fotos (1993, 1994) explored the effectiveness of three C-R tasks in teaching three structures: adverb placement, indirect object placement, and relative clause usage in L2 English to Japanese learners. The participants were randomly divided into three treatment groups. One received traditional teacher-fronted instruction, one performed grammatical C-R tasks, and one performed communication tasks with no instruction of the targeted grammar. Some of the grammar tasks for the C-R group consisted of listening to a story and a dictation of a text, both of which contained examples of the target structures in the form of input flood. These communication-oriented activities were followed by reading the texts used in the listening and dictation and underlining anything the participants noticed. The other tasks used in the study resembled those applied in Fotos and R. Ellis' (1991) investigation. Again, the post- and delayed post-test scores displayed significant knowledge gains in both grammar treatment groups (traditional and C-R), and no significant differences between the two at any of the testing stages were revealed. Additionally, the analysis of the results of the underlining task showed that both groups noticed the target structures, which was evidenced in their highlighting of the forms that had been targeted in the preceding listening and dictation exercises. This indicated that the C-R task was as effective as traditional explicit instruction in promoting significant levels of noticing (Fotos 1993), confirming that the C-R tasks were effective in helping learners to develop explicit L2 knowledge. An additional asset of the C-R tasks was that they generated high levels of learner interaction during the lessons. As indicated by the results of another analysis, no differences were found between the C-R and the communicative (exclusively meaning-oriented) groups in terms of the amount of interactive negotiation that the tasks generated, according to the frequency counts of interactional turns and total words per task. The nature of the task rather than the choice of grammatical structure appeared to be a factor in stimulating meaningful interaction. On the basis of the results, Fotos (1994: 343) concluded that C-R tasks are an appropriate means of integrating a focus on form within a communication-oriented lesson.

The effectiveness of a problem-solving C-R approach was also empirically investigated in an exploratory study by Sheen (1992), who compared traditional explicit instruction and C-R problem-solving tasks. The participants were Japanese learners of L2 French, who underwent both kinds of intervention. The problem-solving task consisted of a presenta-

tion of a list of sentences illustrating the form and use of target structures in L2 French, accompanied by English translations and a brief revision of relevant vocabulary. Then, individual learners were instructed to induce the underlying rules concerning the patterns of the sentences, which was followed by a small-group consensus-reaching discussion of the rules. Finally, a few minutes were devoted to oral and written exercises. Tests revealed equal levels of understanding of the underlying rules for both treatment conditions. However, because of the task design, the traditional explicit procedures allowed for more practice activities, leading to higher scores in oral testing in comparison to the problem-solving tasks (although this difference was not significant), which could indicate that the C-R problem-solving approach would be more beneficial if accompanied by more practice activities.

Yip (1994), in a small-scale exploratory study, applied C-R instruction to draw learners' attention to the differences between the construction and use of the passive voice and of ergative verbs. The participants were a small group of advanced learners of L2 English with different L1 backgrounds, and the treatment involved an explanation of the basic principles of the use of the target structures based on a number of examples, with limited use of metalinguistic jargon. The presentation resembled a "cognitive puzzle" and "was couched in problem solving terms" (p. 133). The results of the post-test GJT were mixed; while some learners progressed, others did not. Apparently, the study illuminated the role of individual factors, learners' cognitive involvement in a task, and the specificity of the target structure itself, as relevant in C-R instruction. Specifically addressing the learner perspective in C-R research, Mohamed (2004) conducted a study on learners' opinions about deductive and inductive C-R tasks. The participants were learners of L2 English at three proficiency levels, and the targeted structures were adjusted to their levels (these were relative clauses, negative adverbs, and ergative verbs. The results of the evaluative questionnaire revealed that both kinds of activities were perceived as effective, with no significant differences in terms of learners' preferences. Clarity of explanation and time efficiency were mentioned as the advantages of the deductive activity, and rule discovery with no teacher intervention was perceived as the strongest point of the inductive task. Proficiency did not appear to be a factor influencing learners' preferences for either type of activity.

Eckerth (2008) investigated the effects of C-R tasks (performed in pairs) on the targeted linguistic gains in terms of explicit knowledge, and on non-targeted learning gains. The participants were adult learners of L2 German at lower and higher levels of proficiency. They performed two C-R tasks: text reconstruction and text repair. In the former task, the learners reconstructed a text they had listened to with the help of some cues, while in the latter task, they received a text with missing elements belonging to certain grammatical categories (e.g. "Früher du haben [infinitive] immer ärgern [infinitive] meine Ex-Freunde" (p. 124)), which they had to "repair" in order to achieve a correct, coherent and appropriate text. Test results revealed significant learning gains in the short as well as the medium term for both lower and upper intermediate learners. This shows that the interactional feedback stimulated by the C-R task was "rich in acquisitional potential" (p. 133), confirming the results of previous research on C-R tasks effects. Apart from these benefits, the C-R tasks appeared to stimulate interactions on other, non-targeted linguistic features, which is another important advantage of such activities, derived from their collaborative, problem-solving characteristics. Collaboration and language processing in grammatical C-R tasks were also investigated by Scott and De la Fuente (2008), who specifically addressed the role of the L1 when learners were engaged in C-R form-focused tasks. The participants were L1 English learners of L2 French and Spanish. The task, aimed at raising their awareness of and invoking reflection on a target structure, involved comparisons of selected relative pronouns in French and Spanish. The students were exposed to enhanced input and collaborated in pairs to work out the rules; one group was allowed to use their L1, and the other one was instructed to use the L2 only. The sessions were recorded and analyzed with respect to the language used in the interactions. It turned out that irrespective of the instruction, students in both groups made use of the L1 in performing the task: however, considerable differences in the quality of the interactions were observed between the groups. In the L1 group, the interactions progressed smoothly, with balanced contributions and collaborative dialog, while in the L2 group interactions were fragmentary and unbalanced, with long pauses and limited collaboration. It was thus concluded that the high cognitive demands posed by C-R form-focused activities can be alleviated by the use of learners' L1.

Although most C-R research has been conducted on adults, Schleppegrell (2013) investigated how the use of metalanguage in C-R

tasks would stimulate noticing form-meaning connections and thus support L2 learning by primary school learners. The participants were learners in grades 2-5 in an ESL setting in the US. The target of the instruction was grammatical mood and the language functions it serves to express; the C-R activities aimed to make the participants realize that different mood choices (declarative, interrogative and imperative) help accomplish different speech functions (e.g. command, offer, question, and statement). The results indicated that the use of metalanguage helped the children to generalize about language use on the basis of examples embedded in a story. The C-R element of the activity was evident in the learners' attention focused on the linguistic patterns in the input, and in the learners' explorations of how language choices influenced the expressed meaning. This approach appeared to simultaneously stimulate a focus on meaning and on form.

Recapitulating the results of C-R research outlined in this section, it can be stated that:

- Research on the effectiveness of input enhancement in converting input into intake has not yielded consistent results; however, more explicit forms of input enhancement have appeared to be more beneficial than its more implicit forms.
- Studies on processing instruction have pointed to positive effects of tasks adjusted to how learners process input; both implicit and explicit knowledge have been found to emerge as a result of such procedures.
- C-R tasks which stimulate a deeper engagement with L2 data through induction have appeared to lead to intake.
- Collaboration in C-R tasks has resulted in learners' noticing and paying attention to L2 features.

2.5. Concluding remarks

This chapter has outlined the role of grammar as a component of ISLA, highlighting its crucial position within a learner's L2 communicative competence, and, as a consequence, quoting arguments for the perception of grammar as a dynamic notion comprising three dimensions: form, meaning, and use. Hence, in the process of ISLA, learners need much more than just declarative knowledge of the form of a structure, because

establishing form-meaning links in order to make sense of how the structure operates is equally important. Currently, following arguments derived from SLA research, which has pointed to the beneficial effects of grammar teaching on learning outcomes, debates on the viability of FFI in L2 pedagogy have led to its re-evaluation and "rehabilitation" (Swan 2011: 566). Therefore, the question that stimulates further research is not whether grammar should be taught, but how it can best be taught in order to support effective acquisition. To this end, various FFI approaches and options have been designed and tested, including explicit versus implicit, FonFs versus FonF, and comprehension versus output-based procedures. Providing univocal solutions concerning the best way of teaching has proved to be a challenge for researchers, given the multitude of factors to consider (linguistic, contextual, and learner-oriented), as well as the different ways of operationalizing crucial variables in research. Generally, however, explicit FFI seems to be more effective than implicit FFI, which highlights the need to explicitly direct learners' attention to the target features, and raise their consciousness in the process of learning. This leads to a justification for grammatical C-R instruction in contemporary FFI. C-R, as demonstrated in this chapter, is understood in accordance to its broad definition as a range of pedagogical options which "encourage learners with the help of the teacher to try to discover a particular grammar rule, to learn about a grammar point for themselves (…), which help learners to construct their own explicit grammar" (R. Ellis 1993b: 10). Such activities allow learners to notice and consciously attend to target features in the input, to try to infer the underlying patterns of the structures, and, usually, formulate hypotheses about the form-meaning mappings. Several specific options have been included within the discussion of C-R instruction in the present chapter: input-based options, such as various, preferably more explicit, input enhancement techniques, processing instruction techniques, techniques based on guided discovery, and task-based C-R options, including both inductive techniques serving as pre- and post-task activities, and C-R tasks, in which the task itself consists in talking about the target structures.

Within the definition of C-R adopted in this work, it makes sense to assume that learners' L1 can serve as a tool in raising their consciousness about L2 forms in the process of learning L2 grammar. It seems sensible to expect that L1-based techniques can make the form-meaning mappings of L2 structures clear to learners, and help them see the underlying pat-

terns and induce the rules. One of the studies reviewed in this chapter (De la Fuente 2009) made use of the L1 as a variable in a C-R study, and found a positive effect of the L1 in lowering the cognitive load of the task for the learners. The following chapter will be devoted to exploring the role of the L1 in learning and teaching the L2, with a particular emphasis of its functions in the explicit learning of L2 grammar.

Chapter 3

The role of L1 in learning and teaching L2 grammar

3.0. Introduction

Chapter 3 aims to discuss issues related to the role of learners' native language (L1) in learning an L2, particularly L2 grammar. Although varied opinions on the role of L1 influence can be found in contemporary SLA and ELT literature, the prevailing approach is aptly expressed by Truscott (2015a: 2) in the following way: "In addition to the obvious extraneous differences, such as motivation and learning context, the presence of an entrenched L1 has to be considered a crucial factor in L2 learning, as it inevitably exerts a strong influence on processing of all sorts." This influence is the core subject matter addressed in this part of the book.

There are five sections in Chapter 3. First, in 3.1., ways in which a learner's L1 influences processes of L2 learning will be explained. Within this area, a discussion of language transfer occupies the most prominent position, as L1 transfer is a process most readily associated with L1 influence in L2 development. Apart from transfer, a number of cognitive influences of the L1 on L2 learning will be discussed. This will be followed by an overview of selected theoretical concepts and SLA theories with regard to the role of the L1 in L2 learning in section 3.2. Sections 3.3. and 3.4. are devoted to a presentation of a pedagogical perspective on the L1 in L2 teaching, and the final section, 3.5., will comprise an overview of previous research on the roles of the L1 in instructed learning of L2 grammar.

3.1. L1-related processes in L2 learning

It has always been assumed by SLA researchers that the L1 exerts an influence on the process of developing L2 competence, on the way it is used, and on its final outcome. The most important arguments for L1 as a foundation for L2 learning are presented in the following subsections. The phenomenon of crosslinguistic influence will be explained, followed by an account of the L1 as a cognitive tool in L2 development.

3.1.1. Crosslinguistic influence

Odlin (1989: 27) defines language transfer as "the influence resulting from the similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired." As noted by R. Ellis (2008: 349), studies on language transfer originally derived from Uriel Weinreich's (1953) research on the influence of one language on another, when languages come into contact (e.g. Afrikaans, English and Bantu in South Africa). However, the concept gained prime popularity and sparked considerable debate in the field of SLA, mainly in the 1960s and 1970s, in a narrower understanding as the influence of the L1 on the L2.[1]

As explained by R. Ellis (2008: 350) and Jarvis (2013: 115), the term 'transfer' has been traditionally used to denote transferring forms, structures and their meanings from one language to another, and is usually associated with habit formation in a behavioristic sense. For that reason, Kellerman and Sharwood Smith (1986) suggested a wider term, 'crosslinguistic influence,' to refer to a range of phenomena embracing L1/L2 relationships, such as transfer, interference, avoidance, borrowing, language loss and other kinds of crosslinguistic effects connected with mental processing. Kellerman and Sharwood Smith's (1986: 1) definition of the newly-coined term was: "the interplay between earlier and later acquired languages," highlighting its broad scope. R. Ellis (2008) concludes that in contemporary discussions, the term 'transfer' is used within the broader perspective, and offers his own definition of transfer, which includes the notion of bidirectionality and the influence of other languages, not just the L1: "[l]anguage transfer refers to any instance of learner data where a statistically significant correlation (or probability-based relation) is shown to exist between some feature of the target language and any other language that has been previously acquired" (R. Ellis 2008: 351).

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[1] Odlin (2016: 6), however, traces the first instances of the use of the term 'transfer' to the 1880s, when it appeared in the works of two American linguists, William Whitney and Aaron Elliott. In the 1920s the term was used by Otto Jespersen, and although Weinreich's (1953) work makes frequent references to 'transfer,' Odlin stresses that this term appeared in psycholinguistic SLA literature in the 19th century, long before the behaviorist period, although it needs to be admitted that research on transfer was heavily influenced by behaviorist psychology and structural linguistics.

According to R. Ellis (2008: 354-358), transfer can be manifested in several ways. The one that is most frequently discussed in SLA literature refers to the *errors* that learners make as a result of L1 interference. Studies have differed considerably in the percentage of errors identified as resulting from transfer. For example, Tran-Thi-Chau (1975) reported 51% transfer errors in the pool of errors made by his study participants, while in Dulay and Burt's (1973) study, transfer errors constituted only 3% of all errors made by their participants. These issues have also been explored in more recent research and have contributed to the development of current psycholinguistic theories. For example, according to the unified competition model (UCM) (Bates and MacWhinney 1982; Morett and MacWhinney 2013), if a linguistic feature exists in both the L1 and the L2, but is instantiated differently, online competition in L2 processing occurs. As a result, the L2 form can be replaced by the L1 form (which is entrenched in a bilingual person's brain), leading to grammatical errors, even in proficient bilinguals. This is influenced by L1/L2 similarity levels, but also by the strength of linguistic cues, such as form-meaning mappings, with the stronger one takes precedence.

Facilitation, caused by L1/L2 similarity, is another possible manifestation of crosslinguistic influence. Ringbom (2007: 68) explains that in learning L2 grammar, learners look for regularities in the lexical sequences that they are exposed to. Of special importance here is the extent to which similar regularities, which form grammatical categories, are present in both the L1 and the L2; if there is similarity, the comprehension of L2 input is facilitated, because syntactic relations among items are already familiar to the learner. Where the grammatical categories exist in both the L2 and the L1, the learning task is easier (Ringbom 1987, 2007).[2]

Apart from interference and facilitation, there are other commonly acknowledged manifestations of crosslinguistic influence. One of them is *avoidance*, caused by the difficulty in using certain structures, due to their absence or a different realization in the L1. As an example, R. Ellis (2008: 357) quotes the results of a study conducted by Schachter (1974), who found that the number of errors in the use of relative clauses made by Chinese and Japanese learners of English was lower than the number of

[2] Tolentino and Tokowicz (2011) admit, however, that the existence and scope of facilitative transfer based on crosslinguistic similarity is a debatable issue, and some researchers have questioned the L1-L2 facilitation effects. This is an issue that has been reexamined in current research on bilingualism.

such errors made by Persian and Arabic learners, not because the former used relative causes with greater accuracy, but because they used fewer relative clauses, finding them too problematic. Ringbom (2016: 39) illustrates the occurrence of avoidance with an example concerning the tendency to omit English articles by learners whose L1s do not have articles. Generally, it is natural for learners to apply their L1 standards in L2 production, and to omit elements which are perceived by them as redundant. On the other hand, crosslinguistic influence can also be manifested in an *over-use* of certain structures or vocabulary items that learners find relatively unproblematic. Over-use can be considered to be a side-effect of avoidance, as learners can use certain items too frequently to compensate for the ones which they avoid. Over-use takes place at the level of both linguistic forms and discourse features.

Odlin (2016: 15) explains that recent studies on transfer have investigated the notion of habit in the sense of three conceptions, namely activation, automaticity and entrenchment. He explains that activation occurs when a target-language item which covers semantically more meanings in the L1 activates in the brain of a user a wider range of meanings from the L1 lexicon. Automaticity is realized as relying on crosslinguistic similarities that instantly pave the way for language processing, making it faster and more efficient. Entrenchment denotes impeding the acquisition of features in a target language that are particularly complex semantically and pragmatically, although they may, at the same time, be simple in terms of form.

R. Ellis (2008: 359) stresses that nowadays, in discussing and researching transfer phenomena, the focus is on the multidimensional character of transfer, including all its manifestations discussed in this section. Similarly, Arabski and Wojtaszek (2016: 223) see the inclusion of a wider range of processes, particularly those underlying language development within a cognitive perspective, as a "re-orientation of focus" in contemporary transfer studies. For example, the notion of *conceptual transfer*, which underlies conceptual representations in a bilingual or multilingual individual's mind as a result of knowing a number of languages, has been increasingly emerging in discussions on crosslinguistic influence (Odlin 2005; Jarvis 2013, 2016). It "refers to cases where language learners', bilinguals', and multilinguals' language behavior exhibits crosslinguistic effects (or transfer) that are interpreted as having taken place in the speakers' conceptual systems prior to the conversion of their preverbal messag-

es into language" (Jarvis 2013: 115).[3] Moreover, Jarvis et al. (2013) acknowledge that although product-oriented investigations into linguistic outcomes of cross-linguistic influence have prevailed in the area of SLA, another, process-oriented strand of research, addressing a variety of cognitive processes, has recently emerged and promises "an exciting and very fruitful avenue for future research" (Jarvis et al. 2013: 288). These cognitive processes involve, for example, models of attentional control, working memory and long-term memory exhibited by bilinguals in the process of acquiring new languages.

Summing up the recent perspectives on transfer in SLA, Cummins (2007: 233) specifies the following types of crosslinguistic influence that operate in different ways and to different degrees depending on the context of learning:

- Transfer of conceptual elements (e.g. understanding the concept of photosynthesis);
- Transfer of metacognitive and metalinguistic strategies (e.g. strategies of visualizing, use of graphic organizers, mnemonic devices, vocabulary acquisition strategies, etc.);
- Transfer of pragmatic aspects of language use (willingness to take risks in communication through L2, ability to use paralinguistic features such as gestures to aid communication, etc.);
- Transfer of specific linguistic elements (knowledge of the meaning of photo in photosynthesis);
- Transfer of phonological awareness—the knowledge that words are composed of distinct sounds.

Some of these types of transfer can be further extended into interconnected, but different kinds of L1/L2 influences, which provides a foundation for a continual investigation into the role of the L1 in L2, as well as into the complexity of crosslinguistic influences in multilingual language development. As stated by Jessner, Megens and Graus (2016: 196), the area of crosslinguistic influence in a multilingual system, defined as "the influence of a person's knowledge of one language on that person's

[3] Jarvis (2016) explains that the phenomenon of conceptual transfer complements and interacts with linguistic transfer (related to the formation of structural representations on the basis of another language) and semantic transfer (underlying the formation of form-meaning mappings in one's mind), because, although each kind of influence can be fairly easily distinguished theoretically, in practical terms, the precise source and nature of crosslinguistic influence can be difficult to pinpoint.

knowledge on another language" (Jarvis and Pavlenko 2008: 1), has currently received considerable attention in studies on multilingualism. A recent line of investigations has looked into interrelations among all known languages, with transfer effects not only from, but also to the L1, or from the L2 to the L3 (e.g., Pavlenko and Jarvis 2002; Porte 2003; de Angelis 2007; Ewert 2009; Wrembel 2015). A closer review of this kind of research is, however, beyond the scope of the present work, which focuses on the effects of the L1 on L2 development. Further considerations of these effects are included in the following subsection.

3.1.2. The L1 as a cognitive tool in learning the L2

There is a large body of arguments for the facilitative role of the L1 in promoting the development of *conceptual knowledge* about the L2. The title of Butzkamm's (2003) paper, in which he presents the L1 as a foundation for L2 learning, is "We only learn language once," which highlights that there are numerous L1 skills that already exist in the minds of L2 learners, and do not need to be relearned, only modified or adjusted, in the context of the L2. Prior knowledge, skills and abilities related to L1 competence, available in L2 learning, will be the focus of the present section. Issues such as knowledge about grammar, communication processes, learners' expertise in using language skills, their metalinguistic knowledge and sensitivity to the language system, all on the basis of their L1 competence and in relation to the developing knowledge of L2 competence, will be outlined here with the aim of demonstrating the ways in which the L1 is a vital foundation for the conceptual dimension of L2 learning.

Stern (1992: 283) states that since in learning the L2 we always start from the L1 as a language that is already familiar, there is a widely accepted assumption that the L1 can be used as a reference system in L2 learning. Faerch and Kasper (1980: 70) highlight that "[m]aking use of *prior knowledge* is certainly not specific to language learning but is employed in all kinds of learning tasks, as had been emphasized by cognitive psychology" (emphasis added). They note that in the case of learning an L2, there are basically three sources of prior knowledge: 'linguistic experience,' 'communicative experience,' and 'language learning experience,' with the L1 playing a role in all of them. With regard to linguistic experience, this is mostly based on implicit and explicit knowledge of the L1, as well as of other languages and the target interlanguage. It is thus natural for learners

to form hypotheses about the L2 on the basis of their prior linguistic knowledge. Corder (1992: 24-25), discussing the L1 as a cognitive basis for L2 learning, argues that the influence of the L1 "is predominantly heuristic and facilitatory; it helps in the process of discovery and creation." It enhances L2 acquisition through mediating the discovery of formal properties of the L2 communicative experience. Much in the same vein, Cummins (2007: 231) makes a reference to cognitive psychology research, explaining that it is instinctive to make use of prior knowledge; if a learner efficiently builds on what they already know, optimal learning is promoted. Referring to the L1 as a *cognitive tool* being a basis for L2 learning, Téllez and Waxman (2006: 266) identify learners' knowledge base as a factor contributing to the effectiveness of instruction, and, like Cummins (2007), see a role for making use of learners' L1 as a useful source of prior linguistic knowledge and a foundation for creating hypotheses about the L2.

Butzkamm and Caldwell (2009: 67) point out that an L2 learner is already familiar with *concepts*, expressed so far through the medium of his or her L1, so in the process of L2 learning, "[r]ather than re-conceptualise the world, we need to extend our concepts, with any necessary cultural adjustment or refinement." Butzkamm (2007) and Butzkamm and Caldwell (2009) explain that even young children are already familiar with the concept of language, its symbolic character, and its capacity to express meanings. Learning an L2, they further argue, to a considerable extent involves relabeling known concepts with new vocabulary and grammatical structures. Providing that there are no considerable cultural differences between the L1 and L2, concepts conveyed through the L2 medium are well-known to learners, but "dressed in the disguise of a new language" (Butzkamm 2007: 3). This constitutes a form of support for acquiring the L2.

Similarly, Rutherford (1987: 7) refers to the *conceptual linguistic knowledge* that exists in a learner's mind. In this view, even if the L1 and L2 differ considerably, L1 knowledge constitutes a foundation for L2 learning, a basis for building L2 knowledge upon. Having acquired one language, a learner does not approach the task of L2 learning without any conception about linguistic phenomena. Instead, a learner already possesses well-established prior linguistic knowledge, which encompasses 'knowledge that' – an innate knowledge about the organization of language and at the same a useful basis for making accurate guesses about what they do not yet know about the target structure, and 'knowledge how' – an ability to communicate at a basic level through very limited L2 resources by

adapting the newly acquired forms, possible due to the experience of having acquired the L1. As a result, as noted by Rutherford (1987: 8), it can be assumed that this prior linguistic knowledge facilitates a learner's L2 performance from the very beginning of L2 learning. The supportive role of the L1 in developing conceptual knowledge about the L2 can also be traced in the premises of *concept-based instruction* (Lantolf, Thorne and Poehner 2015; Lantolf and Zhang 2017). In this sense, the L1 can be seen as a mediating factor in forming valid new conceptual knowledge in the minds of learners and in helping them control their own mental processes. L1-L2 contrastive activity can provide a particularly memorable scheme for enhancing learners' understanding of the meaning of L2 structures.

Falk, Lindqvist and Bardel (2015: 228) discuss the role of the L1 as a source of *metalinguistic knowledge*, "a conscious knowledge of language facts," in multilingual development. Similar effects of this kind of knowledge on the development of L2 knowledge in bilinguals can also be assumed. Butzkamm and Caldwell (2009: 71) stress the importance of learners' familiarity with grammatical concepts on the basis of their L1 knowledge. Even if they do not recognize the metalingual terms for particular grammatical categories, such as 'noun,' 'adjective,' 'passive,' 'relative clause,' etc., they can clearly see L1-L2 correspondence when particular L1 examples are provided. They know, to different degrees of course, what grammatical categories are and what roles they perform in language use. They also know, or can be easily made aware on the basis of their L1 knowledge, that there are inflections which denote different changes of meaning, that word order is important, and that there are words with multiple meanings. As a consequence, those grammatical categories that exist in both the L1 and the L2 do not need to be taught 'from scratch,' as they are already available in learners' minds, and only need to be incorporated into the developing L2 system. Even if the same function is expressed by a different form in the L2, learners know, on the basis of their L1 system, that different form-meaning correspondences are possible, and are mentally prepared for substituting a different form for the same meaning. Moreover, learners are well prepared for understanding certain subtleties of language use, such as idiomatic or metaphoric expressions, irony, etc., and can easily distinguish between core and peripheral meanings of words and phrases, which, at least to a certain extent, makes them sensitive to "potential transferability between languages" (Butzkamm and Caldwell 2009: 72). Swan (1985: 85), presenting arguments for the usefulness of

the L1 in learning L2 grammar, states: "[i]magine starting to learn German without being able to make any unconscious assumptions about the grammar – for instance, that there are verbs and pronouns with similar meanings to our verbs and pronouns." He later adds that the 'equivalence assumption,' holding that words and structures work similarly in the L1 and L2, typically accompanies beginning L2 learners and helps them progress with their L2 knowledge without reconceptualizing their knowledge about language structure. Bialystok (2001: 127) underscores the role of a 'language template,' available in a learner's mind as a result of L1 acquisition, in providing a metalinguistic basis for learning the L2.

Other, related arguments stress the function of the L1 in contributing to the emergence of *awareness of linguistic phenomena* and processes in L2 learners. According to James (1996: 139), the L1-L2 relationship can be evident at the level of intuition possessed by L2 learners, which he labels 'Cross-linguistic Intuition (XLI).' For example, if a learner transfers from L1 those elements which are not transferable, this may be a sign of their intuition not being very well developed. Moreover, another important point to make in the discussion of cognitive benefits of the L1 in L2 learning is that knowledge of the L1 in the context of L2 development can also be of a declarative metacognitive kind, and is referred to as 'Cross-linguistic Awareness (XLA).' As further argued by James (1996), L1 knowledge is one of the factors that contribute to the perceptual salience of an item in the L2, which, according to Schmidt (1990), is a factor involved in noticing. Items (e.g. phonological or structural features) which differ in the two languages are the most salient for learners, and here, as suggested by James, a learner's knowledge of the L1 can help raise their consciousness of L2 features. Situations when cross-linguistic salience is detected by learners can also lead to the development of their cross-linguistic awareness, beneficial for L2 development. Horst, J. White and Bell (2010: 332) point out that cross-linguistic awareness denotes *metalinguistic awareness*, which is a useful basis for the development of overall competence.[4] Referring to L1 knowledge, and making use of one's experience in detecting formal features of a language as a way of attending to L2 form, is also mentioned by Rubin (1975: 47) in her definition of

[4] For example, as noted by Lasagabaster (2001: 312), research indicates that there is a link between one's metalinguistic awareness and the development of reading and writing skills.

good learner characteristics: "[a good language learner] is looking for the interaction or relation of elements (using as a basis for this analysis information from his own language or others that he has learned)".[5]

Another, related, aspect of L1 within a cognitive perspective is that L1 knowledge and use leave traces in a learner's brain, channeling their *attention capacities*. This is the basic premise of the Associative-Cognitive CREED developed by N. Ellis (2007, a theory which sees a privileged place for the L1 in SLA, and which was explained in detail in Chapter 1). According to N. Ellis (2007: 91), "L1-tuned learned attention limits the amount of intake from L2 input, thus restricting the end state of SLA." In other words, as a result of years of linguistic development and experience with using the L1, the brain's neurons are tuned to patterns in the L1, and, as a consequence, the acquisition of any other language will be influenced by this 'learned attention.' In this way, learners perceive L2 data through the lens of their habits and routines connected with the L1, and focus their attention on certain features of the L2 while disregarding others. If certain cues in the L2 are sufficiently frequent and salient, there is a chance that they will be attended to (on condition that there is enough exposure), but if they are less noticeable, they are likely not to attract a learner's attention.

Another dimension of conceptual knowledge that L2 learners owe to their competence in the L1 is related to their knowledge about *communication* and communication-related processes. Rutherford (1987: 19) states that the L2 learner, having already acquired the L1, has some general knowledge about how language performs various functions, the basic one being communication. In other words, the learner knows what language is used for, not knowing yet how these functions are conveyed in the L2. As stated by Butzkamm and Caldwell (2009: 68), while acquiring the L1, a child learns to communicate: to interpret paralinguistic and non-linguistic features of interpersonal communication, to participate in conversations, to recognize and express meanings in different social context, etc. Therefore, L2 learners already possess solid knowledge (depending on their age, of course) about what communication entails and how it is achieved, as they have already acquired discourse and pragmatic knowledge. They know, for example, whether and how to make one's intentions clear, how to negotiate

[5] Building upon this kind of reasoning, Seliger (1983: 181) acknowledges that "language learners are often curious about grammatical relationships they have observed between the target language and their own language", as this is a natural strategy they apply to make use of the prior knowledge about a language system that they already possess.

meaning, how to express irony, etc. Referring to the well-developed communication skills and communication strategies in L2 learners, Swan (1985: 9) wrote: "[l]anguage learners already know, in general, how to negotiate meaning. They have been doing it all their lives." Therefore, although learners' developing communication abilities in the L2 need attention and refinement, they can be expected to be quite competent at basic communication skills, and some of them require no extra training.

Learners' competence in using *literacy skills* in the L1 is another issue, closely related to their knowledge of the process of communication. Butzkamm and Caldwell (2009: 73) stress that literacy skills (reading and writing) are easily transferred from the L1 to the L2. The reading skill in the L2 is facilitated by experience in processing written texts in the L1. As stated by Butzkamm and Caldwell (2009: 73), reading comprehension is a psycholinguistic process, not language-specific, and reading for meaning as a skill is naturally transferable from one language to another. With regard to the skill of writing, European learners of foreign languages are familiar with basic notions concerning writing, such as the notion of linearity, of punctuation, and of the phoneme-grapheme relationships. Cummins (2007: 231) makes the point that literacy skills and knowledge are closely related across all languages that a person knows, and L1 plays a considerable role here. According to Riches and Genesee (2006: 66), literacy-related skills are "part of 'a common underlying proficiency' made up of knowledge and abilities that once acquired in one language are potentially available for the development in another." In their discussion of the acquisition of L2 literacy skills, Riches and Genesee (2006) make references to the Developmental Interdependence Hypothesis elaborated by Cummins (1979) in relation to linguistic development in bilingual children. According to this hypothesis, a bilingual child's attainment in L2 competence is at least partially dependent on the level of L1 competence at the time when intensive L2 exposure starts (Cummins 1979: 233). Although it was formulated about children acquiring the L2 in a bilingual setting, its main tenets seem to be transferable to other settings as well, including foreign language educational contexts (e.g., Lasagabaster 2001). Another point discussed by Riches and Genesee (2006: 80) in relation to the learning of literacy skills in the L2 is that learners successfully transfer the strategies they acquired in L1 writing and reading to literacy skills performance in the new language. Some these strategies are based on us-

ing bilingual resources. This observation coincides with a finding discovered by Cumming (1990: 491), who identified "comparing cross-linguistic equivalents" as a strategy used by successful L2 writers. They often resorted to the L1 (for semantic, lexical, but also syntactic and pragmatic categories) in the case of encountering a difficulty with composing L2 texts. Cumming (1990: 502) concludes that this strategy was a manifestation of the learners' integrating L1 linguistic and metalinguistic resources with their knowledge of the L2. In explaining this phenomenon, he also makes references to the cognitive 'old-to-new knowledge' principle:

> In short, they proceeded from the cognitive principle of assessing unfamiliar knowledge against elements of existing knowledge. The upshot of this cross-linguistic problem solving would appear to be a consolidation of knowledge that mediates linguistic systems in both languages. That is, such thinking episodes may be as much a languages learning process as they are a means of finding or verifying linguistic choices.

Similarly, Ringbom (2016: 41) notes how learners, especially at lower levels of L2 proficiency, have a natural inclination to base their comprehension of written and spoken L2 input on their L1. They have an expectation that the L2 system works on the same principles as the L1 system, and this allows them "to arrive at some approximate comprehension of a text." In this way, "a bridge between input and prior knowledge" is established. This is yet another example of how the L1 serves as a cognitive tool in constructing the L2 system in learners' minds.

Concluding the section on the importance of learners' L1 in L2 learning, it can be stated that:

- Crosslinguistic influence is evident as transfer of L1 linguistic features to the L2 system in the learner's mind, but also as transfer of pragmatic and conceptual information, and involves interconnections among multiple languages.
- The L1 performs a number of cognitive functions in L2 development, serving as a source of prior linguistic and conceptual knowledge, and positively influencing learners' consciousness of L2 features.

3.2. Theoretical accounts of the role of the L1 in L2 development

This section aims to review some SLA theories which have attempted to explain the role of the L1 in the acquisition of other languages. Four frameworks have been selected for inclusion in this section: Contrastive Analysis Hypothesis, Interlanguage Hypothesis, Universal Grammar theory, and the Multicompetence theory. Their choice was motivated by the prominent position the L1 occupies in each of them. All of them have made considerable contributions to the discussion of the role of the L1 in L2 development, including the development of the L2 grammatical system.

3.2.1. Contrastive Analysis Hypothesis

In a work devoted to the role of L1 in L2 learning, Contrastive Analysis (CA) cannot be overlooked, because its main premise lies in making *comparisons* between the L1 and L2 as a way of predicting and explaining learner problems with learning the L2 (Saville-Troike 2006: 34). Odlin's (1989: 3) definition of CA is brief and straightforward: it is a "[s]systematic comparison of two or more languages."[6] Saville-Troike (2006: 34-35) explains that because CA was heavily influenced by structural linguistics, its primary focus was on surface forms of L1 and L2 systems, and on comparing and contrasting these systems at different levels: phonology, morphology and syntax, while vocabulary and discourse received less attention. Thus, the main procedure undertaken within CA consists in describing the L1 and the L2, and pinpointing areas of potential difficulty for learners. This information serves as a basis for constructing L2 syllabuses that highlight structures which are likely to be the most problematic for learners and ordering structures in terms of their difficulty (that is, their distance from the L1). Another strong influence came from behaviorist psychology, evident in the assumption that transfer of habituated elements to a new situation is a powerful phenomenon in any learning; in SLA, it concerns transfer of L1 features to the L2 system. Positive transfer occurs when a form is the same in both languages; if they differ,

[6] Although its origins date back to the 1950s, or even earlier, it is still a prominent and widely discussed approach, especially within the topic of crosslinguistic influence in SLA. Ever since Wardaugh's (1970) publication under the title "The Contrastive Analysis Hypothesis", the term has been widely used in relation to L2 learning and teaching issues (Odlin 2016: 1-2).

and an L1 structure is used inappropriately in the L2, negative transfer (interference) takes place.

With the stimulus coming from CA studies, the Contrastive Analysis Hypothesis (CAH) was formulated. According to a number of publications (Gass and Selinker 2008; Saville-Troike 2006; R. Ellis 2008), it was Robert Lado (1957) who formulated the CAH by claiming that: "the student who comes into contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult" (Lado 1957: 2). In short, according to Saville-Troike's (2006: 35) explanation of the CAH, the easiest L2 structures are the ones that have the same form, meaning and distribution in the L1, and structures with a different form in the L1, but a similar meaning and distribution will be more problematic, but not necessarily very difficult. Structures with L1/L2 differences on all those levels are the ones which are most likely to cause interference and are the hardest to learn.

Odlin (2016: 1), however, expresses certain doubts concerning the way CAH has been interpreted, and provides several of its interpretations made by SLA scholars, some of which stress the L1 as a source of transfer errors (e.g., Dulay, Burt and Krashen 1982), while others highlight the identification of learning problems on the basis of L1-L2 comparisons and the longer time needed to acquire certain forms (e.g., Foley and Flynn 2013). Further on, Odlin (2016: 7) questions Lado's authorship of the term 'Contrastive Analysis Hypothesis,' claiming that it was Ronald Wardaugh who first used it in 1970 to denote "the claim that the best language teaching materials are based on a contrast of the two competing linguistic systems" (Wardaugh 1970: 123).[7]

The CAH was formulated in two versions, the differentiating factor being the degree to which learners' errors could be predicted on the basis of crosslingual comparison (R. Ellis 2008; Odlin 2016). These two ver-

[7] However, a claim very similar to Lado's was formulated even earlier by Weinreich (1953), who wrote: "The greater the differences between systems [languages and dialects], i.e. the more numerous the mutually exclusive forms and patterns in each, the greater is the learning problem and the potential area of interference" (Weinreich 1953: 1, as quoted in Odlin 2016: 9), and in 1945 Charles Fries made a claim that also expresses the CAH idea: "the most efficient materials are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner" (1945: 9, as quoted by Odlin 2016: 8).

sions are referred to as 'strong' and 'weak' views, 'a priori' and 'a posteriori' views, or 'predictive' and 'explanatory' views (Gass and Selinker 2001: 73). In the strong form, the CAH assumed that all errors in the L2 could be predicted once the areas of L1/L2 differences were identified. As stated by Lee (1968: 180), "the prime cause, or even the sole cause, of difficulty and error in foreign language learning is interference from the learner's native language." The weaker form of CAH, formulated by Wardaugh (1970) at a time when it was clear from research that many errors did not result from transfer, claimed that the source of an error (that is, the L1 or not) could be identified only after it was made.

The CAH gave rise to the design of syllabi according to its principle, as reflected, for example, in the works by the Prague School researchers. According to Thomas (2004: 158), Prague School scholars made use of "crosslinguistic synchronic comparisons." They also developed their own specific pedagogic procedures, reflecting their appreciation of systematic features of language, in which a "method of analytical confrontation" between the L1 and the L2 was applied. The justification for this procedure was to detect the differences in the form-meaning connections between the two languages. Thornbury (2013) also mentions the works of the Prague School when discussing CA, explaining that approaching and confronting crosslinguistic differences was at the core of language course syllabi and instructional procedures advocated by its scholars. According to Vachek (1972, after Thornbury 2013), in learning and teaching an L2, it is vital to analyze the structures that are similar in the two languages, but a particular focus should be placed on the differing features. Detection of functional differences between the two language codes through systematic guidance was also a procedure advocated by Fries (1968, after Thornbury 2013), another Prague School scholar.

CA, popular in the 1960s, started to be seriously criticized in the 1970s, when its limited view on accounting for errors and its impracticality became evident (R. Ellis 2008: 361). According to Gass and Selinker (2001: 73), CA was seriously challenged by the changing theoretical orientation on the nature of language and language learning, which started to be viewed as active rule learning, and not as the formation of habits. However, it continued to be pursued by research and, in fact, has never been entirely abandoned, although its scope has shifted to different fields of investigation. In 1990, Fisiak outlined the primary interests of CA at that time, which included meta-theoretical and theoretical issues, contras-

tive descriptions of languages, cross-language studies which relied on contrastive data to validate hypotheses about languages made on the basis of linguistic theory, comparative studies beyond the level of syntax (i.e. at the level of pragmatics, discourse analysis, psycholinguistics, and cross-cultural issues), and pedagogic applications of CA (Fisiak 1990: 4).

Sharwood Smith (1988b: 159) demonstrated how comparing grammatical structures of languages might be beneficial at a time when CA had started to be criticized. Although, as he claims, enumerating aspects difficult to learn on the basis of their L1-L2 distance is no longer considered possible or necessary, CA is still useful as a way of offering explicit explanations about L2 features. While simple aspects of L2 grammar can be taught without reference to the L1, contrastive description is a good solution as a presentation technique when teaching more complex L2 areas. This kind of reasoning is related to the 'old-to-new' principle argument which comes from cognitive educational psychology and which was discussed in 3.1.2. In this perspective, CA serves two main purposes: firstly, it offers a useful and insightful comparison of grammatical structures, which shows L1/L2 relationships, and secondly, it offers ways of approaching new material through information well established in learners' minds. James (1996: 145) presents an argument for the CA approach in contemporary L2 learning by stating that "[o]ne can nowadays (…) make out a strong case for doing Contrastive Analysis for CR [consciousness-raising] and LA [Language Awareness] purposes in class." Nowadays, CA has a broader scope of investigation, and mainly for this reason, although it still entails analyzing similarities and differences between the L1 and the L2, it has been currently referred to by SLA scholars as the *cross-linguistic approach* to avoid direct associations with the aims and procedures of the old paradigm of CA (Sharwood Smith 1988b; R. Ellis 2008). The cross-linguistic approach includes both cognitive and metacognitive dimensions of language study, and thus can be especially beneficial for adults with sufficiently developed intellectual maturity.[8] Sharwood Smith (1988b: 160) makes it clear that his suggestion for employing the contrastive approach does not reveal behavioristic notions about predicting learn-

[8] Saville-Troike (2006: 37) also notes that CA procedures have been recently re-appreciated in the learning and teaching of the L2. The revised interest in CA is currently realized it comparing and contrasting languages on more abstract levels, resulting in a broader scope of such comparisons, which also include aspects of cross-cultural communication and rhetoric.

ing difficulty on the basis of L1-L2 comparison; instead, it is an idea for complementing other didactic procedures depending on the age of learners and other individual and contextual factors.

As concluded by R. Ellis (2008: 365), currently, a balanced approach toward the premises on which the CAH was founded dominates in SLA. It needs to be acknowledged that crosslinguistic influence "works in tandem with other factors," which opens up new perspectives for further, more comprehensive views concerning L1 contribution to learners' emerging L2 competence. This seems to lead to a discussion of the role of the L1 in the formation of interlanguage.

3.2.2. Interlanguage Hypothesis

According to Tarone (2006: 748), Corder (1967) was the first researcher to introduce a perspective that was considerably different from the one offered by the CAH in the way it accounted for the mechanisms involved in learning the L2. Corder suggested that a 'built-in syllabus' allows learners to develop 'transitional competence,' which differs from either the L1 or the L2 system (Corder 1967: 166). Within this perspective, the L1 was still perceived as an important resource in L2 learning, but it was no longer considered to be its basis. A similar idea was put forward roughly at the same time by Nemser, who developed and described the notion of an 'approximative system,' defined as "the deviant linguistic system actually employed by the learner attempting to utilize the target language" (Nemser 1971: 115, as quoted in Selinker 1992: 174). However, the scholar who is most obviously associated with this line of thinking and who coined the term 'interlanguage' in reference to learner language is Larry Selinker (1972, 1992).

Trying to explain the internal psychological processing in a learner's mind that leads them to make utterances in the L2 was the basis for Selinker's investigations. He attempted to explore how learners make 'interlingual identifications' (according to Weinreich's (1953) term) and what the psychological structure of these identifications is. Selinker (1972: 210) assumed that a latent psychological structure is formed in a learner's brain in their attempts to use the L2. Referring to the utterances in the L2 that an average (i.e. moderately successful) learner makes, Selinker noticed that they are "not identical to the hypothesized corresponding set of utterances which would have been produced by a native

speaker of the TL [target language] had he attempted to express the same meaning as the learner" (1972: 214). Elaborating on these issues, he went on to explain his understanding of the notion of 'interlanguage':

> [I]n the making of constructs relevant to a theory of second-language learning, one would be completely justified in hypothesizing, perhaps even compelled to hypothesize, the existence of a separate linguistic system based on the observable output which results from a learner's attempted production of a TL norm. This linguistic system we will call 'interlanguage' (IL). (Selinker 1972: 214)

According to Selinker (1972: 215), the only observable data relevant to interlingual identifications come from three different sources: one of them is the learners' utterances in their L1, another one – their interlanguage (IL) utterances, and finally – the target language (TL) utterances made by a native speaker. These three kinds of data constitute the psychologically relevant data for L2 learning and the basis of the study of psycholinguistic processes which establish the knowledge underlying IL behavior. Selinker distinguished five central processes in this latent psychological structure, which are crucial in L2 IL development: language transfer, transfer-of-learning, strategies of L2 learning, strategies of L2 communication, and overgeneralization of TL linguistic material.

Initially, as noted by Selinker (1992: 338), the concept of IL emerged from attempts to interpret two basic processes observed in target language production: L1 *transfer* and a process called *fossilization*, in other words, 'getting stuck' in IL structures at different stages of development. Fossilization is a pervasive phenomenon, occurring even if sufficient exposure to the L2 and interaction opportunities are provided. Selinker (1972: 215) explains that fossilization and L1 influences are connected:

> fossilizable linguistic phenomena are linguistic items, rules, and subsystems which speakers of a particular NL [native language] will tend to keep in their interlanguage relative to a particular TL [target language], no matter what the age of the learner or amount of explanation or instruction he receives in the TL.

Although L1 transfer is considered to play an important role in the theory of IL formation, Selinker (1972, 1992) explains that it constitutes one of many influences. Gass (1979) refers to the selective character of IL formation, suggesting that certain L1 features are transferred to IL more easi-

ly than others, which is a consensus view shared by most researchers nowadays, and rejecting extreme positions on the role of the L1 in L2 learning (as quoted in Selinker 1992; Tarone 2006, 2014; Montrul 2014). L1 knowledge is one source of influence on IL, alongside L2 input and language universals, and, taking the 'process view' of language transfer, it can be stated that it is in interaction with other kinds of influences and limitations in the formation of one's IL.

What follows from this is that that IL contains features of both the L1 and the L2, which is reflected by the following statement made by Corder (1992: 23): "[i]nterlanguage was defined as a system intermediate between the mother tongue and the target language. Hence its name, *inter*language." Stern (1992: 283) also acknowledges that since to a certain extent one's IL system is developed on the basis of the L1, in a way the L1 and the L2 'fuse' in the mind of a learner. However, it is not certain whether IL represents a gradual progression from L1-based rules to L2-based rules, or whether it is mainly an independent creation. Stern (1992: 283) explains that within IL studies, different positions have been distinguished in relation to the role played by the L1 in IL formation. The *restructuring hypothesis* assumes a role for the L1 as an initial basis for L2, and it is therefore, in a way, a cross-lingual theory of L2 learning. On the other hand, the *creative construction theory* assumes that IL development is a result of independent creation by a learner, hence it presents an intra-lingual explanation of learning an L2. In a similar vein, Saville-Troike (2006) notes that at the initial stages of unschooled L2 learning a learner inserts L2 words and phrases in a structure heavily relying on the L1. Tarone (2006: 749) explains that at early stages of learning, learners tend to extend the meaning of items on the basis of the three systems: the L1, the L2, and their IL. For example, an L1 lexical item can be transferred to idiomatic or metaphorical usages in the L2, which will lead to wrong forms in the IL. Montrul (2014: 79) clarifies that in the 'restructuring' perspective, although at initial stages the learner is more constrained by the L1 than later, there is no guarantee that the final stage will converge with target language grammar, in fact, such situations are very rare. This is largely congruent with other researchers' observations of the role of transfer at different stages of learning. Ringbom (2007), for example, seems to agree that L1 transfer is most significant at the early stages of L2 learning, when the range of resources upon which learners can build their L2 competence is still lim-

ited. Greater reliance of the L1 is thus a natural way of compensating for gaps in L2 competence. On the other hand, discussing the role of crosslinguistic similarity in learning L2 structures, Ringbom (2007: 67) makes references to the specificity of the developing IL system, noting that the starting point for learning is neither the L1-grammar, nor the L2-grammar, but "something much less complicated," a very simple system that is gradually developed in the direction of the TL grammar. He argues that in accordance with a natural human tendency to "conserve effort," learners assume similarities to their L1, producing utterances with neither L1 nor L2 structure, and making transfer-based errors, even if the L1 and the L2 differ considerably.[9]

Despite L1 and L2 influences, however, IL is considered to be a language system with its own *distinctive* characteristics. Selinker (1992: 338-339) states that in fact, the prime characteristic feature of an IL is that it is independent of both the L1 and the L2, containing new and unique forms, not found in either of the two languages. As an example, Selinker (1992: 339) quotes the sentence "*How much dóes cost banana*?", produced by a Spanish speaker using English IL, and applying the 'do-support' and 'do-emphasis' rule in an idiosyncratic way, different from any native-speaker production. Another IL characteristic, related to the previous one, is that in an IL there are "regular and systematic deviations" in relation to the target language norms. *Variation* is thus another typical feature of IL systems, as there are different types of IL, dynamic and stable, developed by learners and by IL users in informal settings; moreover, IL outputs produced by a single speaker also vary in different contexts. Still another characteristic of IL grammar is their *permeability*, which allows learners to incorporate elements from their L1 in IL production (Adjémian 1976, after Tarone 2014: 11).

Summing up the relevance of the IL hypothesis in SLA, Tarone (2006: 750) states that it is "a historically rooted, research-based, and theoretically motivated framework for the study of second-language acquisition, which can easily account for both the role of native-language transfer and of universal grammar in shaping interlanguage." Therefore, a natural con-

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[9] Selinker (1992: 210) underscores learners' own perceptions about which features are similar enough to be transferred in their IL creation. The overall crosslinguistic learning strategy, responsible for "setting up interlingual identifications," embraces, among other things, avoidance strategies, fossilization and backsliding, and overproduction of certain forms, all of which contribute to the shape of one's IL.

sequence of having discussed the role of the L1 within the framework of the IL theory is to move on to present its position in SLA according to the theory of Universal Grammar.

3.2.3. Universal Grammar

According to Chomsky (1957: 29), the creator of Universal Grammar (UG) theory, UG is "the system of principles, conditions, and rules that are elements or properties of all human languages." Gass and Selinker (2001: 168-169) explain that UG belongs to nativist approaches to language, which assume that language learning, at least to a certain extent, involves innateness. This means that language has certain innate universal properties, "a set of abstract principles that characterize core grammars of all natural languages" and constitute a mental representation of language. Apart from these *principles*, which are invariable and are found in all languages, there are *parameters* that are specific to each language. UG theory was first elaborated in relation to child L1 acquisition, and served to explain the ease of L1 acquisition with the help of an innate mechanism, but later the UG assumptions were extended to the field of SLA.

The role of the L1 in L2 acquisition is a debated issue within UG theory. White (2015) points out that assigning a "relatively trivial" role to the L1 on the basis of an assumption that learning the L2 with the support of an inborn UG system requires no support from the L1 is one of the most frequent misconceptions of this theory. While on the surface, a connection between an innate UG involved in L2 acquisition and the influence of the L1 in the process may seem incompatible, in the view of many UG proponents, L1 grammar constitutes an integral part of UG theory of SLA. According to many scholars (e.g. V. Cook 1994; VanPatten 2011; L. White 2003, 2007; Ortega 2007, 2015), UG theory sees a role for the L1 as the *initial state*, a point of departure for subsequent L2 acquisition. How important the role of the L1 is, however, seems to be an unresolved question among researchers. Although some UG proponents agree about a considerable influence of the L1 in the early stages of L2 acquisition, several positions have been formulated and approached empirically (reviewed by Mitchell, Myles and Marsden 2013: 90-94). Generally speaking, UG theory suggests that L1 influence, although definitely relevant, depends on the specific perspective within the theory (e.g. full versus partial access positions, described below).

Within the discussion of the initial state of the SLA process, as noted by Gass and Selinker (2001: 174), a particularly prominent role for the L1 is acknowledged within the *Fundamental Difference Hypothesis* (e.g., Schachter 1988), which basically assumes that SLA significantly differs from child L1 acquisition. Among the differences is the L2 learners' knowledge of language system on the basis of L1 knowledge, which children do not have. A related difference is connected with the phenomenon of language transfer; while successful L1 acquisition is possible with any language, the ease and ultimate success of L2 learning depend, to a considerable extent, on an L1-L2 typological distance. Therefore, Gass and Selinker (2001: 175) argue that the L1 gives adult L2 learners knowledge about language universals and indirect access to UG. Its influence is combined with learners' general problem-solving skills, thanks to which they approach the learning of the L2 system equipped with knowledge that an infinite number of sentences are possible in a language, that languages have syntactic rules, etc. More specifically, they possess knowledge about certain syntactic properties of languages, for example, that statements and questions are formed differently, that nouns are modified, and that there are adjectives and relative clauses in a language. On the basis of this knowledge, learners make assumptions about linguistic features in general, and about 'a pseudo-UG.' In this way, the L1 "mediates knowledge of UG" for L2 learners (Gass and Selinker 2001: 176).

Discussions of the initial state also involve another perspective, namely the *Access to UG Hypothesis*, within which different positions have been outlined (Gass and Selinker 2001: 176-178). The *full transfer/partial or no access* approach, similar to the Fundamental Difference Hypothesis, presumes that the initial state of L2 learning is the final state of L1 knowledge, that is, a fully-formed knowledge of L1 grammar, which gives a learner access to UG. Thus, if a certain UG principle is absent in the L1, it will not be available in the IL. The *no transfer/full access* approach, on the other hand, maintains that L2 learners have full access to UG, and is based on the assumption that L2 learning is similar to L1 acquisition, with the same starting and end points, and the same development path. Another position, *full transfer/full access*, assumes the L1 to be the starting point for L2 learning, but at the same full access to UG if the L1 turns out to be an insufficient basis for the learning task. This position also assumes that L1 and L2 learning is different, and so is the ultimate state of L1 and L2 acquisition. A following approach, *partial trans-*

fer/full access, claims that both L1and UG, but different properties of each of them, are available at the same time. Finally, the *partial transfer/partial access* approach assumes that only parts of L1 grammar and parts of UG are available in L2 acquisition, which results in only partially successful ultimate attainment.

These different positions have been widely discussed in numerous publications on UG theory (e.g., V. Cook 1994; L. White 2003, 2007, 2012, 2015; Montrul 2014), and they seem to be relevant within the present work, because all of them, albeit in different ways, attempt to account for the role of the L1 in L2 development from the UG perspective. VanPatten (2011: 11) summarizes these specific positions by pointing out that in most theoretical considerations of syntactic development, L1 influence is present, and it is widely accepted that the L1, in one way or another, plays a role in acquisition. Within UG-oriented approaches, the most widely accepted general position is that the L1 constitutes the initial state, that is, the starting point for all abstract features of syntax. Within this view, L2 learning aims to 'overwrite' the innate L1 system, which is generally referred to as parameter resetting. According to numerous sources, the L1 exerts a persistent effect on L2 learning, due to which perfect final attainment may be impossible, despite the existence of the innate internal mechanisms responsible for language acquisition. L. White (2003: 41-42) states very clearly that the 'unconscious' knowledge of the L2 that learners have can be derived from L1 grammar. There is empirical evidence (e.g., Bley-Vroman 1990; Schachter 1989) indicating that UG-based constraints in interlanguages are dependent on L1 parameters. In fact, L1-L2 relationships can hardly be 'disentangled,' given that the L1 is a natural language, based on general UG principles. On the other hand, L. White (2003) notes that L1 transfer is insufficient in an explanation of all UG phenomena, which is evident in the numerous cases when a learner can apply UG principles to domains in the L2 that do not even exist in the L1. This observation leads to a conclusion that "[i]t is inappropriate to contrast UG with the L1 as the source of UG-like knowledge; rather, both appear to be involved" (L. White 2003: 42).

The interplay of UG and L1 influences in L2 learning leads to an investigation of the role of transfer in UG theory. It is interesting to consider how differently the concept of transfer is viewed in UG theory than in other approaches, particularly CA. Gass and Selinker (2001: 186-187) discuss three such differences. One of them concerns transfer at the levels

of representation; UG theory posits that sentences can have both underlying and surface structures, and L1 transfer can occur on the basis of each or both of them. Another point that was investigated was whether the parameters that were reset in learning another grammatical system involved the same clusters of properties. CA studies, Gass and Selinker (2001) argue, do not focus on how structures are related in the minds of learners, while the UG perspective looks at structural relatedness in crosslinguistic influences. The learnability of L2 structures is another area of transfer-related investigations within UG. It is assumed that in cases where positive evidence (on the basis of L2 input that a learner is exposed to) is available, and a parameter can be reset on its basis, little L1 transfer takes place. If, however, positive evidence is insufficient, it is predicted that transfer will take place.

L. White (2012: 309) agrees that the relationship and interaction between UG and L1 influences raises interesting questions, and admits that "[o]ver the years, perspectives on the relationship between UG and the L1 grammar have changed and developed." Overviewing and discussing the relationships between UG and L1 grammar addressed by different perspectives within the UG framework, L. White (2012) points to three major themes. One of them is the UG-L1 relationship in terms of principles and parameters, with specific issues such as whether L2 learners have access to UG and whether (and to what extent) L1 parameters are reset in L2 learning. Another issue concerns the role of the L1 as initial state and development of the L2, summed up in the five different positions outlined above. Finally, more recent considerations of the UG-L1 relationships have focused on interfaces among internal elements of grammar (such as phonology, syntax, semantics, morphology) and among grammar and external domains, such as discourse and pragmatics. Generally, current UG research looks into the difficulties encountered by L2 learners in situations when internal and external interfaces are different in the L1 and in the L2.[10]

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[10] In her discussion on the relevance of the L1 in various SLA theories, Ortega (2015) notes that because UG-based research generally aims to distinguish what is based on L1 rules and what is related to language universals in SLA, it is natural that empirical investigations within this approach involve learners from different L1 backgrounds and their comparisons with monolingual L1 and L2 speakers. In this way, Ortega (2015: 255) concludes, "the L1 holds a privileged role in this theory not only in theoretical terms but also in terms of actual research practices."

3.2.4. Multicompetence

Multicompetence is a recent theoretical perspective within the dynamic systems[11] view on *multilingual* development (V. Cook 2016a, 2016b; De Bot 2016). The term 'multicompetence' was introduced by V. Cook to address the state of an L2 learner's knowledge, composed of the L1 and a learner's interlanguage, and it was initially defined as "the compound state of a mind with two grammars" (V. Cook 1991: 112). This definition was later expanded to include both individual language users and their communities, and a language system in a broader sense, not just its grammar. In its refined definition, multicompetence is "the overall system of a mind or a community that uses more than one language" (V. Cook 2016a: 3). The most important aspect of this perspective is, thus, that it encompasses the *total system* and all possible dynamic interconnections among all languages in one mind, that is the L1, the L2, and any other additional languages (Ln), as in language production, none of the languages is ever switched off completely.

The above considerations are related to the three premises of the multicompetence perspective formulated by V. Cook (2016a). The first premise is: "multi-competence concerns the total system for all languages (L1, L2, LN) in a single mind or community and their interrelationships." In this way, all languages create "an eco-system of mutual interdependence," which unites the L1 and subsequently acquired languages, and, therefore, "SLA research that ignores the first language element is blind to the one inescapable feature of the L2 user's mind that distinguishes it from that of a monolingual – the first language system: it is yin without yang" (V. Cook 2016a: 9). V. Cook (2002: 11) sees three points on the continuum of possible relationships among languages in one's mind: separation (languages are independent of each other, like in coordinate bilinguals), interconnection (with many possible degrees), and integration (languages are totally integrated with each other), and stresses that all L2 users are somewhere in the middle of this continuum, as total separation and total integration of languages at all possible levels (syntax, lexis, phonology, etc.) are not possible. Another premise of

[11] Dynamic systems comprise various elements which influence one another and bring about changes in the system. They are thus characterized by: interconnectedness, non-linear development, internal reorganization and interaction with the environment, and variation over time (De Bot 2016: 126-129).

the perspective is that: "multi-competence does not depend on the monolingual native speaker," which questions the native-speaker norm as an L2 standard. V. Cook (2016a: 15) stresses that "L2 users are unique users of multiple languages, not pale imitations of native speakers," and their language systems are considerably different because of the presence of the L1 and the dynamic interrelations among all languages. Therefore, comparisons of L2 users' competence against native speakers' competence are unwarranted, because of the differences between them, deprived of any evaluative judgment connected with superiority or deficiency. L2 users differ from monolingual speakers in their use and awareness of the L1, their uses of the L2, and metalinguistic awareness (V. Cook 2013b; Ewert 2009). Finally, the third premise of multicompetence is: "multi-competence affects the whole mind, i.e. all language and cognitive systems, rather than language alone," which is related to how people who know more than one language think, and in what ways their cognition differs from that of monolinguals (V. Cook 2016b: 33). Expanding this point, V. Cook (2013b: 448) writes, "[t]hey perceive colors slightly differently, categorize objects differently in terms of shape and substance, and convey notions of manner and path differently in the sentence." This points to a reconsideration of some kind of linguistic relativity, this time not in relation to the perceptions of concepts by monolinguals from different language background, but by comparing monolinguals with L2 users (V. Cook 2016a: 21).

In this way, the multicompetence perspective "challenges the monolingual norm that has characterized much of the research in bilingual education and L2 learning" (Cummins 2007: 231) and its essence is that, as a result of knowing more than one language, bilinguals' and multilinguals' mental structures differ from those of monolinguals. Cummins (2007) clarifies that this view is interconnected with the dimensions of crosslinguistic influences and language development, addressed in the previous sections of the present work, and stresses the dynamic interactive relationships among all languages in the minds of bi- and multilingual learners. According to Herdina and Jessner (2002), the existence of the systems of more than one language in a learner's mind has an impact on the development of the linguistic system as a whole, including the competence in the L1. This perspective thus exceeds the view that languages in one's mind are interdependent; instead, it claims that the psycholinguistic make-up of a bi- and multilingual person's mind differs qualitatively from

the make-up of a monolingual's mind. Jessner (2006: 35) sees it as "a complete metamorphosis of the system involved and not merely an overlap between two subsystems. If this is applied to multilingual development, it means that the interaction between the three systems results in different abilities and skills that the learners develop due to their prior learning experience." Naturally, this has consequences for the learning of L2 grammar, because, as noted by Berkes and Flynn (2016: 220), multicompetence involves all areas of language functioning, including the developing L2 syntactic system. The use of more than one language (including the L1, the L2, and any subsequent ones) helps language users develop a certain kind of 'syntactic sensitivity' which can be a facilitative factor in integrating various specific linguistic features in the developing L2 grammar.

Recapitulating the section on the theoretical positions on the role in L2 learning, the following points are worth stressing:

- While CA in its traditional sense aimed to compare languages in order to trace areas of potential difficulty, contemporary contrastive approaches focus upon the facilitative cognitive function of the L1 in L2 learning.
- IL theory sees L1 transfer, in addition to other factors, as a crucial element influencing learners' IL.
- UG theory acknowledges the role of the L1, focusing in particular on the possibility and extent of resetting L1 parameters for the L2, and the L1 as the initial state with a range of access positions.
- In Multicompetence theory, the L1 contributes to the overall dynamic language system in the mind of a multilingual speaker. As such, it also influences an L2 user's sensitivity to language structure and the way L2 grammar is developed in this system.

3.3. The position of the L1 in L2 learning and teaching: A pedagogical perspective

The changing theoretical positions have impacted pedagogical approaches toward the relevance of L1 use in the process of learning and teaching the L2, and have thus been reflected in L2 teaching methods and specific didactic procedures. In this section, a review of the changing perspectives on L1 usefulness in L2 didactics will be outlined. This historical overview

will be followed by a literature review of the arguments formulated against and for the use of the L1 in L2 learning and teaching. The arguments in favor of L1 presence in L2 didactics will be grouped according to the functions performed by the L1. This section will be concluded by a presentation of a selection of sample bilingual techniques that can be used to teach L2 grammar.

3.3.1. The L1 in L2 teaching approaches and methods

The influence of the theoretical positions on the nature of language and language learning outlined in the previous sections has resulted in considerable changes in the pedagogic recommendations and practices concerning the presence and roles that the L1 has played throughout the history of L2 education.

Stern (1992: 280) notes that in the past, the cross-lingual approach was taken for granted in foreign language didactics for centuries. As conceded by Richards and Rodgers (1996: 1-3, 2014: 3-5), between the 16th and 19th centuries, classical Latin was taught with the application of a rigorous *analysis of grammar* and the use of *translation* as a basic procedure, and this was imitated in the teaching of modern languages within the trend called the *Grammar Translation Method*. It was introduced at the end of the 18th century in Germany and continued, enjoying great popularity, throughout the 19th century (Howatt 1984: 131). Texts were accompanied with interlinear translations, rules of L2 use were explained in the L1, with the L1 considered as a means of instruction and as a reference system. Richards and Rodgers (2014: 5-6), among the characteristics of the method, list bidirectional sentence translation as a way of practicing the knowledge of grammar rules acquired through a detailed explicit analysis. They also note: "[t]he student's native language is the medium of instruction. It is used to explain new items and to enable comparisons to be made between the foreign language and the student's native language." Howatt and Widdowson (2004: 39) illustrate this trend with the so-called 'double-translation' method, consisting in an L2-L1 translation of a chunk of language and then back to the L2, which was introduced as early as in 1570 with the aim of increasing learners' awareness of the forms in the L1 and the L2. Cieśla (1974: 143) states that the heavy reliance on grammatical rules accompanied by translations was also present in the 18th century textbooks for teaching foreign languages (mainly French and German) in Poland. As early as the 18th

century the renowned educator and reformer Kajetan Kamieński postulated that examples of French-Polish analogies and differences should be introduced into coursebooks, claiming that interlingual analysis would support learners' overall intellectual development. Interestingly, another notable educator, Stanisław Konarski, suggested that translations be made from the L2 (French) to the L1 (Polish) in initial courses, and from Latin to French in more advanced courses, also with the aim of providing intellectual exercise to learners (Cieśla 1974: 147). Although, as stated by Stern (1992: 280), the teaching procedure typical of the Grammar Translation Method "has maintained itself in language teaching to the present day," its effectiveness has proven to be largely unsatisfactory in terms of the overall command of the target language.

Though the bilingual approach was very deeply rooted and dominant for many decades, toward the end of the 19th century the changing realities and aims of L2 instruction brought about significant changes. Cieśla (1974: 200) explains that foreign languages came to be used as a tool for achieving practical aims, such as conducting business. This gave rise to the *Reform Movement*, which brought a primary interest in the development of oral skills and, as a result, the previous reliance on inter-lingual techniques was rejected. Indeed, extreme reformers insisted on the introduction of *exclusive L2 use* in L2 teaching. Richards and Rodgers (2014: 9) list "teaching new meanings through establishing associations within the target language rather than by establishing associations with the native language" as one of the tenets formulated by the Reformers. G. Cook (2010: 15) claims that as a result of this orientation change, the justified arguments against the Grammar Translation Method turned into arguments against any use of the L1 within the field of L2 instruction.

Consequently, the *monolingual principle* dominated in 20th century L2 teaching. As noticed by Howatt (1984: 289), "the monolingual principle, the unique contribution of the twentieth century to classroom language teaching, remains the bedrock notion from which the others ultimately derive." This approach was initiated at the turn of the 19th century and stemmed from different reasons, not all of them purely pedagogical. According to Auerbach (1993: 12), this trend was associated with ideological and political rather than purely didactic issues. She makes a connection between the growth and popularization of teaching English as a second language at the beginning of the 20th century and the birth of the movement of 'Americanization.' This economic, social and political movement was one

of the sources of the influences on the emerging ESL methodologies of that time, which were naturalistic, or 'direct' methods, stressing the importance of oral English for successful acquisition and instilling the principle of L2-only classroom instruction. In this way, the Reform Movement led to a development of a new teaching method, aiming to create conditions similar to child L1 acquisition, the *Direct Method*, which was characterized by

> a) a growing distrust in the notion that words in different languages could be equivalent in meaning, b) dissatisfaction with translation based teaching strategies (…) and c) the influence of contemporary theories of psychology which stressed the importance of direct associations between words in the new language and their referents. (Howatt 2004: 313)

Cieśla (1974: 213) notes that in the most popular German textbook in Poland at that time (Hauptmann 1909), the translation technique was totally rejected, and grammar was taught exclusively by German-only exercises, sometimes accompanied with pictures. This was a reflection of the principles formulated in 1882 by the German professor of English Wilhelm Viëtor, which underlay the Direct Method: (1) oral language should be the basis of L2 teaching, (2) grammar should be taught inductively, and (3) translation should be completely removed from teaching practices (Cieśla 1974: 320). As can be seen from these main tenets, the ban on the use of the L1, so characteristic of the Direct Method, was motivated by an urge to imitate naturalistic conditions in the teaching of a foreign language.[12] Howatt and Widdowson (2004) report the justification of the rejection of translation provided by Maximilian Berlitz, the greatest propagator of the Direct Method and the owner of over 200 schools in Europe and the US, in which the method was implemented: "(i) translation wastes valuable language learning time which should be devoted entirely to the foreign language; (ii) translation encourages mother tongue interference; and (iii) all languages are different ('every language has its peculiarities, its idiomatic expressions and turns, which

[12] What follows, listening and speaking were considered the most important skills, basic everyday vocabulary was taught through demonstration and association, and grammar instruction consisted in an inductive presentation of simple structures needed for communicative purposes. These procedures necessitated the exclusive use of the target language as the medium of instruction (Richards and Rodgers 2014: 12).

cannot possibly be rendered by translation')" (Berlitz 1898, after Howatt and Widdowson 2004: 224).

Such rigorous demands presented by the method appeared to be problematic, and a variety of practical obstacles in the implementation of the procedures emerged. Richards and Rodgers (2014: 13) argue that the total rejection of the L1 was one of the objections voiced against the method, as it was soon noticed that "teachers were required to go to great lengths to avoid using the native language, when sometimes a simple, brief explanation in the student's native language would have been a more efficient route to comprehension." This policy met with resistance from teachers, who were used to employing the L1 in their teaching, as a result of which a compromise position was established, introducing a modified version of the method, in which the Direct Method techniques were complemented with those from the Grammar Translation Method. While acknowledging the existence of L1-based techniques in teaching practices, the assumption was that the L2 should be used as much as possible, since exclusively or almost exclusively L2-based teaching was considered to be the most beneficial for learners.

The trend of *opposing interlingual techniques* continued to grow until the mid-1960s, and "eventually became almost universal" (Stern 1992: 280). In the 1950-1960s it was particularly strengthened by the behaviorist framework popular at that time, which viewed language learning as habit formation, according to which the L1 was considered to be a potential source of interference. New teaching methods which arose at that time continued to exclude the L1 from its procedures, largely continuing the "monolingual principle" (Cummins 2007: 223). It needs to be noted that Charles Fries, the founder of the Michigan Oral Approach (an approach within Structural Language Teaching), which gave rise to the development of the *Audiolingual Method*, appreciated the role of applying contrastive analysis in studying the structure of the L2. He wrote: "only with sound materials based upon an adequate descriptive analysis of both the language to be studied and the native language of the student (or with the continued expert guidance of a trained linguist) can an adult make the maximum progress toward the satisfactory mastery of a foreign language" (Fries 1945: 5). While advocating the usefulness of contrastive analysis in the process of developing didactic materials and activities (such as structural drills), he opposed the application of bilingual techniques in the classroom. Within the principles of

the Audiolingual Method, there was a strong preference for pursuing the so-called 'co-ordinate bilingualism,' in which the L1 and the L2 are separated, over 'compound bilingualism' and 'subordinate bilingualism' (Ervin and Osgood 1954).[13] The development of co-ordinate bilingualism was advocated by Brooks, the most influential L2 methodologist at that time, who stated that a learner's reliance on the L1 in L2 learning "will nullify his efforts to establish within himself a co-ordinate system of two languages" (Brooks 1964: 52). Moreover, the L2 was thought to be best learned through analogy, not conscious analysis (Richards and Rodgers 2014: 57). Therefore, Brooks (1964: 42) recommended "[t]he subordination of the mother tongue to the second language by rendering English inactive while the new language is being learned", making a provision that translation could only serve the purpose of "a literary exercise at an advanced level."

The monolingual principle has been largely present in the implementation of *Communicative Language Teaching* (CLT) and in the recommended instructional procedures that it follows (Cummins 2007: 223; McMillan and Rivers 2011: 252), which are based on the principles of communicative and meaningful use of the L2. This necessitates the provision of activities that make the learners struggle to communicate, even with limited L2 resources, and naturally calls for learning and using the L2 through the medium of the L2. However, the principles of CLT do not explicitly include an exclusion of the use of the L1; instead, rather vague recommendations concerning L1 use are made, allowing *judicious use* of the L1 "where feasible" and the application of translation as a teaching technique "where students need or benefit from it" (Finocchiaro and Brumfit 1983: 92). Swan (1985: 85) lists a lack of consideration for the role of the L1 among his criticisms of CLT, writing: "[a]s far as the British version of the Communicative Approach is concerned, students might as well not have mother tongues," and wondering why within the communicative orientation students are expected to learn to communicate in the L2 with a disregard of their previous knowledge of language structure and functions.

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[13] Pavlenko (2011: 21) explains that compound bilinguals have two separate conceptual systems, each derived from a different language (the L1 and the L2) and associated with a different lexicon, while compound and subordinate bilinguals have just one conceptual system, derived from the acquisition and knowledge of the L2 which are mediated by the L1.

McMillan and Rivers (2011: 263) notice that although clear recommendations for a rejection of the L1 were not formulated for CLT, the role of the L1 was largely neglected in the literature on discussions of its features. Consequently, a lack of explicit guidelines on L1 use formulated within CLT principles could have unintentionally led researchers and teachers to assume that it was unwelcome in L2 instruction. Hence, many practitioners assumed that L1 use was an obstacle in the efficient learning of target languages. This is also acknowledged by V. Cook (2001: 404), according to whom:

> [r]ecent methods do not so much forbid the L1 as ignore its existence altogether. Communicative language teaching and task-based learning methods have no necessary relationship with the L1, yet (…) the only times the L1 is mentioned is when advice is given on how to minimize its use. The main theoretical treatments of task-based learning do not, for example, have any locatable mentions of the classroom use of the L1. (…) Most descriptions of methods portray the ideal classroom as having as little of the L1 as possible, essentially by omitting reference to it.

J. Willis (1981: xiv), while strongly recommending monolingual teaching techniques, admits that the use of the L1 can sometimes be justified. Among the situations in which it could be appropriate to use the L1, she lists: translating a vocabulary item, explaining the aims of the lesson or an activity, checking students' understanding, and summarizing the main ideas of a reading text. A reservation is made, however, that switching to the L1 should only take "a few seconds" and should have a clear purpose, such as saving time. These suggestions are convergent with the general recommendations for language use within CLT.

As observed by V. Cook (2001: 402), L1/L2 connections were primarily explored by the so-called *alternative methods* of L2 teaching, such as the New Current Method, Community Language Learning, and Suggestopedia, which resorted to principles derived from humanistic psychology. In other, 'mainstream' methods, at least at the level of methodological guidelines and discussions, L1-based techniques were largely abandoned in favor of monolingual teaching procedures (Littlewood and Yu 2011: 66).[14]

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[14] This trend has also been reflected in official documents regulating L2 teaching policies in various countries, and recommendations for monolingual instruction are still found in publications. As an example, Thompson and Harrison (2014: 322) make refer-

However, it needs to be acknowledged that even within strongly monolingual approaches there appeared voices for a consideration of some forms of the inter-lingual approach toward L2 didactics, and a complete rejection of the L1 was never universally accepted. As noticed by Stern (1992: 281), even some audiolingual techniques contained an L1 element. Dodson (1967, after Stern 1992: 282) designed the so-called 'bilingual method' based on the use of drills which incorporated the L1 as a way of illustrating the meaning of structures and enhancing opportunities for their practice. Within the generally monolingual trend of CLT, Widdowson (1979: 101) argued against the overall rejection of L1-based techniques, claiming that in some situations translation can be a useful technique, and in a later publication, he called for CA techniques being reconsidered and accepted "as a methodological principle" (Widdowson 1992: 107). An innovative use of the translation technique was suggested by Duff (1989), who incorporated elements of translation into speaking activities, such as discussions and pair and group work, claiming that translation enhances learners' accuracy and flexibility, and stimulates discussion about problematic areas of the L2.

In fact, the role of the L1 has been strongly dependent upon numerous factors, including the educational policy of a given country. As noted by researchers (G. Cook 2007; Hall and G. Cook 2013: 8), techniques derived from the Grammar Translation Method were employed and considered to be appropriate in societies which maintain traditional attitudes toward education, such as China, till the end of the 20th century. In Poland, as noticed by Scheffler (2013a: 84), the advantages of using the L1 in L2 teaching were provided in publications from the 1970s and 1980s. To illustrate this, he gives examples of Marton's (1978) and Kaczmarski's (1988) works, both of which recommended the use of bilingual techniques in L2 teaching. Littlewood (2014: 358) agrees that the 'monolingual principle' has been present and respected in most of the methodological proposals that have influenced language teaching until recently, adding that in many contexts, such as in Hong Kong and the UK, it continues to be official policy to teach only in the target language or at least to use the mother tongue only as a last resort. In some other

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ences to a recent statement by the American Council on the Teaching of Foreign Languages (ACTFL), published in 2010, on language choice in L2 teaching, which makes it explicit that both teachers and learners should use the L2 almost exclusively, for more than 90% of the time, both in class and, when possible, outside it.

contexts (e.g. Mainland China and South Korea), teaching through the L1 has been accepted practice, but official policy now urges teachers to exclude it.

Since the final decade of the 20th century, there has been a visible change in the attitudes toward the presence and roles of learners' L1 in the processes of learning and teaching the L2. Stern (1992: 279), after stating that in the 1990s and in the previous two decades L2 teaching was "entirely intralingual" and the application of bilingual teaching techniques was not even considered as a discussion point for most researchers and teachers, concluded that a time had come for reconsidering the use of the L1 in L2 teaching, for example, as a point of "comparison and reference." Indeed, a reconsideration of the place and role of the L1 in L2 learning and teaching, together with renewed interest in its effectiveness as a didactic resource, was initiated in the 1990s. Although Cummins (2007) quite recently noted that monolingual procedures are still generally recommended, and there is still a prevailing assumption that instruction should be carried out entirely in the L2, he and other researchers have increasingly started to highlight the need to change this way of thinking. In a detailed overview of the position of translation in L2 instruction, Gnuzmann (2009: 56) notices a more favorable attitude toward translation as an L2 teaching technique and a renewed interest in its implementation in the context of contemporary language education.

There are various reasons for the contemporary gradual change of attitudes toward the L1. One of the sources of this shift lies in the influence of the cognitive theory on the psychology of learning, as a result of which *the role of previous knowledge* in new knowledge acquisition is appreciated. A related reason, particularly relevant in the context of the present work, is the renewed interest in *consciousness-related issues* in L2 learning and teaching, and in FFI in L2 education, in which references to learners' L1 may play a role (e.g., Kerr 2016). Another reason for the reappreciation of the L1 is that L1 acquisition processes have recently been questioned as a model for L2 learning; instead, a *developing bilingual* or multilingual who builds his or her L2 competence on the basis of previously acquired languages (including the L1) has been considered to be the optimal 'natural model' for learning a foreign language (Butzkamm and Caldwell 2009; G. Cook 2005; Edstrom 2006; McMillan and Rivers 2011). This is connected with the current concepts of language learning and use as involving *sociocultural* phenomena, and the demands of lan-

guage instruction in global multilingual and multicultural societies (Inbar-Lourie 2010: 352).[15] As a consequence, there has been criticism of the English-only policy as a privilege of native-speaker teachers of English who often do not know their learners' L1 and discourage them from using this resource in their learning (Kumaravadivelu 2006: 167). Finally, another reason for the recent re-consideration of the presence of the L1 in the learning and teaching contexts is a strong appreciation of *learner-centered approaches* in education, with a focus on learner individuality, self-regulation and autonomy. The learners' L1 is, undoubtedly, an important resource encouraging their self-reliance and the use of a wide range of L2 learning strategies with reference to what they know. According to Inbar-Lourie (2010: 353), the inclusion of the L1 as a learning resource contributes to "active student involvement in the learning process and for using the L1 as a means to scaffold learning and co-construct knowledge." This can lead to a feeling of greater *self-efficacy* in the process of learning.

The reasons summed up above have led to a generally more favorable attitude toward the roles and position of the L1 in contemporary L2 learning and teaching. Voices against the L2-only policy in L2 teaching, often based on empirical evidence, have been frequently heard in the recent literature. A considerable number of publications devoted specifically to the role of the L1 in L2 education have appeared: books and edited volumes (e.g. Butzkamm and Caldwell 2009; Turnbull and Dailey O'Cain 2009; G. Cook 2010; Laviosa 2014), numerous articles of a theoretical, practical and empirical character (e.g. Butzkamm 2001, 2003, 2007; V. Cook 2001; Hall and G. Cook 2012; Kerr 2015; Sali 2014; Scheffler 2016, Scheffler et al. 2017, to name just a few), and collections of teaching techniques and activities (Deller and Rinvolucri 2002; Kerr 2014). A change can be noticed in popular methodology coursebooks for teachers; for example, while an earlier edition (1991) of Harmer's teacher training manual largely overlooked the topic of the role of the L1, mentioning just once that it can be used to check learners' understanding of instructions for activities (p. 239), the most recent edition (2015) contains a whole subsection (pp. 49-51) on this subject. Brooks-Lewis (2009: 220) notices that contempo-

[15] Turnbull and Dailey-O'Cain (2009: 1) elaborate on the influence of the changing perspective on the learner, stating that it naturally gives the L1 an important place among factors influencing L2 learning, as the L1 is then considered a resource bilinguals constantly refer to in their daily language functioning.

rary teaching materials, such as student books, also increasingly contain L1 elements in the form of vocabulary translations and grammar explanations, including elements of contrastive analysis. As an example, she gives the *Headway* series (initiated in 1986) and the recommendations of the Council of Europe (2001: 99) that L1-based resources be used in teaching and in designing didactic materials. Interestingly, Polish Matura-preparation course-books are required to include elements of Polish in instructions and explanations, despite the fact that the English-only policy is generally recommended in Poland (Kerr 2016: 515). As noticed by Littlewood and Yu (2011: 66), many recent revisions in official documents (made after the year 2000) have reflected the changing position of the L1 in the field of L2 teaching. For example, in the UK National Curriculum there are suggestions that making L1-L2 comparisons can be purposefully used for raising learners' language awareness and thus facilitating learning. Similarly, The Ministry of Education of China, in an experimental syllabus for high schools, has recently advocated the use of the L1 in order to clarify particularly problematic grammatical structures and vocabulary items. On the other hand, in Korea, where the L1 has been extensively used in L2 teaching so far, recent guidelines include the monolingual principle (according to which the L2 should be used for at least 80% of classroom time, as noted by Macaro, Graham and Woore 2016: 13).

According to Macaro (1997) and Macaro, Graham and Woore (2016), there are three basic positions in the contemporary discussion concerning the place of the L1 in the process of teaching the L2, derived from 'teacher belief systems.' One of them, the 'virtual position,' advocates exclusive L2 use, and a total exclusion of the L1. Another one is the 'maximal position,' occasional and justified L1 use is permitted despite a general recognition of a relevance of conducting classes exclusively in the L2. Finally, there is the 'optimal position,' based on a belief that the L1 is an important resource in L2 learning and teaching, and its purposeful use should be encouraged. Each of these positions is based on a set of arguments formulated in relation to SLA theories, research findings, and practical pedagogical considerations of the didactic process. The arguments against and for (in that order) an inclusion of the L1 in L2 teaching will be discussed in the following two subsections.

3.3.2. Arguments against the L1 in L2 instruction

It has been noticed by researchers (e.g., Macaro 1997, 2009; Auerbach 1993, 2016; de la Campa and Nassaji 2009) that many of the teachers who use the L1 in their teaching treat it as a sign of failure, and as something they should be ashamed of. Opponents of L1 use in an L2 classroom seem to believe that the L1 is mainly used by badly qualified non-native speaker teachers. Such a way of thinking reveals a deep conviction that exclusive L2-medium instruction is the desired didactic norm, and any use of the L1 introduces a deviation from this norm. This approach is referred to by researchers as the 'monolingual fallacy,' based on an assumption that monolingual instruction leads to the best learning outcomes. As explained by Phillipson (1992: 185), "[i]mplicit in the monolingual tenet is the belief that an exclusive focus on English will maximize the learning of the language, irrespective of whatever other languages the learner may know."

Auerbach (1993) sees the source of such feelings in the pedagogical framework based on the assumption that learners' progress is proportional to the amount of *exposure* to the L2 and of their attempts to use it. Turnbull and Dailey-O'Cain (2009: 3) and De la Campa and Nassaji (2009: 743) concede that the arguments against L1 use as derived from certain theories, one of which is 'the L1=L2 learning hypothesis' adopted by *natural approaches*, which assumes that L2 exclusivity helps create learning conditions parallel to those in L1 acquisition. The Direct Method is among the pedagogic proposals based on these principles, and the Natural Approach devised by Krashen and Terrell (1983) is another one. At the core of the Natural Approach there is an assumption that sufficient amounts of optimal, i.e. comprehensible and roughly-tuned, input in the context of naturalistic communicative situations, together with positive affective predispositions, are a necessary condition for successful L2 acquisition, as they trigger the acquisition mechanisms in learners.[16] What follows is the claim that resorting to the L1 as a means of providing, for example, explicit explanations, can seriously impede successful acquisition, because it deprives learners of L2 input (R. Ellis 1984: 133). Similarly, Turnbull (2001: 535) sees the limitation of a teacher's use of the L2 as particularly problematic in certain educational situations. He stresses that "it is crucial for teachers to use the TL

[16] One of the premises of the Natural Approach, therefore, is that "[t]he classroom is the source of input for language students, a place where they can obtain the comprehensible input necessary for language acquisition" (Krashen and Terrell 1983: 59).

as much as possible in contexts in which students spend only short periods of time in class on a daily basis, and when they have little contact with the TL outside the classroom." In contexts where the teacher is the main, or sometimes the only source of L2 input for learners, which is most often found in English as a foreign language settings, the communicative exposure-based arguments against the inclusion of the L1, and thus for maximizing L2 use, seem to be most justified.

Other very frequently quoted arguments derived from the Communicative Approach toward L2 instruction are related to phenomena vital to pursuing the communicative dimensions of language use, namely *interaction* and *output*. Macaro (2009: 49) notes that these arguments against L1 use are formulated on the basis of the findings of studies which abounded in the 1980s and 1990s, and which led to the formulation of certain recommendations for teaching. An important tenet of the Communicative Approach is that beneficial conditions for L2 are created when learners have ample opportunities for meaningful L2 interaction, which necessitates the negotiation of meaning, and in this way ensures the provision of interactionally modified input, adjusted to the processing capacities of the learner. This is the essence of the Interaction Hypothesis formulated by Long (1996). McMillan and Rivers (2011) found a decrease in the negotiation of meaning in classroom situations where the L1 is allowed. Finally, learner production is another crucial element conducive to effective L2 learning, as explained by the Output Hypothesis (Swain 1985).[17] Such arguments, highlighting the relevance of sufficient L2 input, interaction, and output in the process of learning, are also substantiated by the success of immersion programs in developing learners' fluent use of the L2 (e.g., Lightbown 1991; Pica, Young and Doughty 1987). According to this line of reasoning, L1 use in the classroom has negative effects, because it naturally limits input and output opportunities in the L2.[18]

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[17] Output is important for learners because it forces them to pay attention not just to the general meaning of their utterances but also to the syntactic form, thus helping them to notice the gap between the meaning and functions they want to convey and the repertoire of linguistic forms that they have at their disposal. For this reason, learners need to produce output in the L2, for resorting to the L1 can hamper L2 development.

[18] As a result of these arguments, "[a]mong many communicative foreign language and immersion instructors, there is a blind acceptance of the notion that exclusive target language is the best practice that refuses to entertain any kind of meaningful dialogue

Monolingual practices in the L2 classroom stimulate the application of a number of *communication strategies*, defined as "potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communicative goal" (Faerch and Kasper 1980: 81). Being able to sustain communication even with limited L2 resources is a crucial strategy that needs to be practiced in the classroom. Macaro, Graham and Woore (2016: 14) make the point that L1 use in a teacher's explanations can hinder the development of learners' strategy of inferring the meaning of unknown lexical and grammatical items from context, which is crucial in real-life encounters. Demir (2012: 23) adds that instead of attempting to infer meaning from context or to express themselves in the L2 by resorting to L2-based communication strategies, they are likely to turn to the L1 as an easier option. These arguments are thus connected with diminishing *opportunities for communication* in the L2. Overall, within this line of reasoning, using the target language consistently for all possible purposes in the language classroom can lead to a more natural development of learners' intercultural communicative competence (Inbar-Lourie 2010: 352).

A slightly different, but related argument against the L1 is that if the L2 is treated as a medium for classroom communication and serves natural communication purposes, such as socializing, learners' attempts to try to use it are supported. L2 use can lead to enhanced learners' *motivation*, because they can see its usefulness in achieving communication aims (Hall and G. Cook 2013; Turnbull 2001). As noted by Littlewood (1981: 45), "many learners are likely to remain unconvinced by our attempts to make them accept the foreign language as an effective means of satisfying their communicative needs, if we abandon it ourselves as soon as such needs arise in the immediate classroom situation." Crawford (2004: 7) makes the point that a teacher's exclusive or almost exclusive use of the L2 demonstrates that "languages are different but not to be feared," and enhances learners' positive attitudes toward communication through the L2 medium. It is a frequently voiced objection that the use of L1 can decrease the motivation of more proficient learners and those with a holistic learning style (Demir 2012). Macaro, Graham and Woore (2016: 13) see a connection between a teacher's consistent use of the L2 in the classroom and learners' motivation to employ all their possible strategies to under-

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about this hegemony, about the realism or desirability of the position or about the potential usefulness of the first language for learners" (Turnbull and Dailey-O'Cain 2009: 4).

stand the message. Once they succeed at achieving the task, i.e. understanding the teacher's speech in the L2, they feel satisfaction. Another related argument is connected with the ability to *think in the L2*, often considered to be an important step in gaining L2 proficiency. Opponents of the inclusion of the L1 argue that the process of developing thinking in the L2 is seriously inhibited if the L1 is used in the learning-teaching process (Littlewood 2014; Demir 2012).

Demir (2012: 23) also warns that allowing the L1 into the classroom can easily lead both learners and teachers to an *overreliance* on it. The argument that in certain contexts, a teacher's use of the L1 could set a bad example for learners appeared in McMillan and Rivers' (2011) account of the advantages and disadvantages of using the L1 in the L2 classroom. In fact, as noticed by Nation (2003), in monolingual classes, the L1 is often overused in situations when L2 use should be fostered. Zojer (2009: 33), summarizing the most frequently quoted arguments against the use of translation in L2 learning and teaching, claims that translation as a teaching technique is sometimes used excessively, without being justified by an immediate need, and then it tends to have a rather detrimental effect on the teaching of the four communicative skills, and the speaking skill in particular. Ammar, Lightbown and Spada (2010: 130) see dangers resulting from unwarranted and too extensive L1 use especially in classrooms where learners share the L1. In such situations not only are opportunities for a negotiation of meaning in the L2 limited, but learners are also exposed to interlanguage forms influenced by the L1 and might easily incorporate them into their interlanguage system. As warned by Prodromou (2001: 7), there is a considerable difference between L1 use and its *abuse*.

Apart from that, while the use of the L1 can make learning a more conscious process (which can be seen as an advantage), it can lead to teaching *about* the target language and its grammar instead of developing actual skills to use it, which is clearly a disadvantage (Demir 2012: 24). Majer (2003: 399) stresses that overusing the L1 or using it inappropriately, e.g., to convey most organizational and administrative functions, makes a lesson content-oriented, instead of communication-oriented. In such an undesirable situation, examples in the L2 become the subject matter, being the object of explicit instruction.

Finally, *practical obstacles* in the application of the L1 constitute another group of arguments against its use. One of the most frequently quoted arguments of this kind concerns insufficient knowledge of learners' L1

by native-speaker teachers, who simply cannot highlight cross-lingual differences and similarities. In light of this frequently observed obstacle, Copland and Yonetsugi (2016) make a strong claim that even native-speaker teachers should be bilingual in order to fully cater for learners' needs and create optimal learning conditions. A further practical argument against the L1 in the classroom is that making use of learners' native languages by the teacher is impossible in situations when there are learners with many different L1 backgrounds in one group, which is often the case in English as a second language settings. It also needs to be mentioned that most coursebooks do not include references to learners' L1s because they have been written to suit the needs of a global population of learners and teachers. This further promotes the monolingual principle in teaching (Hall and G. Cook 2013: 8; Horst, White and Bell 2010: 332).

3.3.3. Arguments for the L1: Its functions in L2 instruction

Despite the sound arguments against L1 use that were outlined in the previous section, Rivers (2011b: 31) makes the point that a total exclusion of the L1 "represents an unrealistic target for the majority of learners and one which may promote a number of negative consequences." Indeed, a vast body of convincing arguments, which often resemble counterarguments to the ones formulated by proponents of monolingual teaching, abound in theoretical, empirical and practice-oriented publications. These arguments are derived from the important functions that the L1 serves in the process of learning and teaching foreign languages to make it smoother, easier and more effective. They show that "student first language use would often seem to benefit and not hinder target language comprehension, production, collaboration, task management and performance" (McMillan and Turnbull 2009: 31).

The functions that the L1 can perform in the process of L2 teaching are derived from the general typologies of language use within classroom discourse. For example, R. Ellis (2012: 95) suggests a division of language use goals into 'core' (when the focus is on the target language and on the teaching content), 'framework' (related to classroom organization and management), and 'social' (connected to initiating and maintaining interpersonal relationships in the learning-teaching process). Other researchers (Hall and G. Cook 2013; Kerr 2016; Rolin-Ianziti and Varshney 2008) apply these or similar ways of categorizing the functions of the L1 used in the

classroom, typically making a distinction between 'medium oriented'/'core', and 'framework oriented'/'social' goals. The former refer to the L1 or the L2, or a mixture of both, as the medium of conducting classroom interaction intended to *develop L2 skills*, and to teach elements of the L2, such as grammar points, vocabulary, etc. The latter group of goals is related to conveying *classroom management* and organization issues, such as providing instructions, explaining homework, keeping discipline, etc.[19] The knowledge of the different functions that the L1 can serve in the process of L2 teaching is a vital condition of 'principled' L1 use by teachers, where "*[p]rincipled use* is understood to mean that the speaker gains awareness of the functions of first language use as an integral part of second-language interaction and learning" (Levine 2009: 145). L1 use makes sense only when it is principled and purposeful, and its amount and specific functions depend predominantly on the teacher, who knows the given educational context and students' needs, therefore, generalizations are not possible (Edstrom 2006; Hall and G. Cook 2013; Macaro 1997).

Most of the *medium-oriented/core functions* that the L1 serves in L2 learning and teaching can be formulated as counter-arguments to the claims for its exclusion in L2 instruction. In fact, although the main argument against the use of the L1 is that it deprives learners of opportunities to practice using the L2 and develop their L2 communication skills, numerous publications present the point that the L1 can be a major resource in establishing the L2 as the main medium of communication in the process of L2 learning and teaching. According to Butzkamm (2003: 32), the L1 is a tool that "launches, as it were, the pupils' canoes into the foreign language current," introducing them gradually and safely into participating in L2 communication. Littlewood (2014: 359) notes that L1-mediated instruction can serve as a natural bridge between the two languages, and Auerbach (1993) argues that paradoxically, the L1 can facilitate the process of developing thinking in the L2. Initially using the L1 as a means of formulating their thoughts, then a mixture of the L1 and the L2, learners gradually develop an ability to express themselves through the medium of the L2. In this way, the L1 can contribute to increased use of the L2 in the classroom, as it can give an initial stimulus to an expres-

[19] Harbord (1992: 352), based on a similar rationale but using different labels, sees the following three groups of L1 functions: 'facilitating teacher-student communication', 'facilitating teacher-student rapport', and 'facilitating learning.'

sion of ideas and, as such, it "supports a gradual, developmental process in which use of the L1 drops off naturally as it becomes less necessary" (Auerbach 1993: 17). The following quotation by Piasecka (1988: 97) highlights the L1-L2 mediation in the development of a learner's L2 communicative competence:

> [T]eaching bilingually does not mean a return to the Grammar Translation method, but rather a standpoint which accepts that the thinking, feeling, and artistic life of a person is very much rooted in their mother tongue. If the communicative approach is to live up to its name, then there are many occasions in which the original impulse to speak can only be found in the mother tongue. At the initial stages of learning a new language, the students' repertoire is limited to those few utterances already learnt and they must constantly think before speaking. (…) We need to speak in order to sort out our ideas, and when learning a new language this is often best done through the mother tongue.

Similarly, Nation (2003) sees a role for the L1 in preparation activities (such as brainstorming ideas, recalling stories, discussing some issues, etc.) in order to facilitate fluency in the L2.[20]

Brooks and Donato (1994: 268) note that the L1 is a very useful tool for *negotiation of meaning*, crucial in classroom and real-world communication, and suggest that resorting to the L1 in L2 interactions is "a normal psycholinguistic process that facilitates second-language production and allows the learners both to initiate and sustain verbal interaction with one another." If the use of the L1 is banned or discouraged, there is a danger that learners will not be willing to express their intended meaning at all. Therefore, Antón and DiCamilla (1999) argue that during L2 interactions, the L1 can serve as a *scaffolding tool* for initiating and maintaining conversations, as well as for externalizing learners' inner speech.

Cummins (2007) notices the benefits of resorting to the L1 in the development of learners' *literacy skills* in the L2. Helping learners take ac-

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[20] Oga-Baldwin and Nakata (2014) also argue that carefully managed L1 use can contribute to increased, purposeful L2 use in the classroom. In their study, teachers in young learners' classes applied a routinized system of signaling when the L1 and the L2 were supposed to be used and providing transitions in the L1, which contributed to an enhanced pacing of activities. As a result, an increase in L2 use in teacher talk was recorded. The study was a demonstration of how learners' L1, through promoting L2 confidence and increased use, can be employed to support L2 optimization in the classroom.

tive part in a lesson, L1 use makes it possible for them to understand written L2 input better and enables them to produce their own written texts. To illustrate this point, Cummins (2007: 236) refers to research conducted by Bismilla et al. (2006), in which learners, following a task of writing texts about their identities, expressed their feelings about the usefulness of using their L1 in the process of writing. One of the learners wrote,

> When I am allowed to use my first language in class it helps me with my writing and reading of english because if I translation in english to urdu then urdu give me help for english language. I also think better and write more in english when I use urdu because I can see in urdu what I want to say in English. (Bismila et al. 2006, after Cummins 2007: 236)

This quotation from a learner's evaluative account of their practice speaks to the benefits of the L1 as a tool in the development of their literacy skills in the L2, and in promoting *learners' confidence* about their L2 production.

Naturally, perhaps the most basic and obvious function of L1-based techniques and explanations in the L2 classroom is that they *facilitate understanding* of the meaning of L2 input. Making the grammatical structures in a new language meaningful is a crucial benefit derived from the incorporation of the L1, for example through a translation technique, as noted by Hentschel (2009: 24-25). Hentschel argues that a technique based on making literal translations, which sometimes result in creating absurd and usually ungrammatical L1 or L2 sentences, can be a useful procedure in helping learners understand the very specificity of a grammatical structure in the L2 by allowing them to discover the exact patterns of the form for expressing a specific meaning. Comparing this pattern with the patterns present in their own language can be a revealing learning experience for students. Hetschel (2009: 25) puts forward a suggestion that translation, either literal or not, can be effectively used to complement or replace the provision of metalinguistic rules. While serving the same function, cross-linguistic comparisons will undoubtedly be more appealing and accessible to most learners. Macaro, Graham and Woore (2016: 14) note that explanations provided in, or complemented by, the L1 are especially useful in situations when the teacher focuses more on the accuracy of the message, not on its general understanding by learners. Such situations can be exemplified by a precise explanation of the meaning of a complex vocabulary item or a grammatical structure. Then the bilingual teaching strategy is "optimally beneficial." In this way, facilitation

of understanding the grammatical input is also accompanied by drawing students' attention to features of the L2 system.

Importantly, referring to the L1 in the process of L2 learning can function as a tool for raising learners' *awareness* of linguistic structures and processes. This point is also stressed by Widdowson (2003: 23), who writes that "the activity of comparing and contrasting the L1 with the target language is a manner of promoting language awareness." Such arguments for the implementation of bilingual teaching techniques are congruent with a recent research interest in the positive effects of explicit FFI (R. Ellis 2006; Nassaji and Fotos 2011; Pawlak 2006). Niżegorodcew (2007: 21) makes the point that referring to the L1 system in the learning of the L2 system performs three important functions: "[i]n the noticing-function the learner notices differences between his/her language and the target language, in the hypothesis-testing function he/she applies his/her underlying language rules to language production, and in the metalinguistic function he/she has an opportunity to reflect on the produced language." It can thus be concluded that the application of teaching techniques such as translation (of phrases and sentences) and deliberate cross-linguistic comparisons focuses learners' attention on the syntactic features of both languages and helps them understand the form and form-meaning mappings of grammatical structures in the L2. Much in the same vein, Gnuzmann (2009: 57) states that translation, through offering an insight into different forms in the two languages, highlights the syntactic specificity of each of them and, additionally, "[b]ecoming aware of the structural-formal and lexico-semantic differences between languages helps learners to see through both languages and thus avoid linguistic interference." Moreover, by increasing learners' overall language awareness, translation tasks help learners appreciate such aspects of communicative language use as linguistic precision and appropriateness. Komorowska (1980: 125) also notices that cross-lingual comparisons help learners consciously notice the syntactic and functional uniqueness of both grammatical codes, making them avoid 'false generalizations' and, as a consequence, avoid interference. Similarly, Zojer (2009: 34), discussing the advantages of translation as a cognitive tool, stresses that it makes language contrasts salient to learners and thus makes them more aware of the traps of negative transfer.

Increased language awareness can lead to the development of learners' *metalinguistic sensitivity*. Zojer (2009: 35) further notes that apart from contributing to the development of learners' skills and linguistic competen-

cies in the L2, the use of bilingual techniques, such as translation, "also slowly builds up a reflective language consciousness about the function of language and the relationship between language and thought, language and culture and so on." In this way, learners become more aware of linguistic phenomena, and more sensitive to how languages operate at the level of structure and functions. Gozdawa-Gołębiowski (2003: 203-204) sees referring to the L1 in L2 learning and teaching as a way of increasing learners' "appreciation of the linguistic system in general." In other words, through the explication of L1 structures, learners have a chance to develop interest in exploring how language works as a system, which may have immediate effects for learning a given L2 form as well as a long-term effect in fostering learners' intrinsic motivation to investigate linguistic structure. Presented with interesting, sometimes even striking L1 data, perhaps in comparison with parallel L2 data, such explication can make learners at different levels of L2 proficiency receptive to linguistic sophistication. This receptiveness will, naturally, depend on their age, stage of development, motivation, etc., but with adult learners, especially at university or college level, learning about language through examining L1/L2 differences is likely to have the positive effect of promoting reflection about language as a system. This, in turn, can facilitate the L2 learning process in a more general sense.

Turnbull and Dailey-O'Cain (2009: 6) and Sali (2014: 311), discussing the cognitive benefits of resorting to the L1, make the point that the use of the L1 is claimed to reduce the *cognitive load* in the process of learning a new language. When a teacher uses the L1 for academic reasons, such as for explaining a difficult grammar point, correcting errors, providing examples, etc., the cognitive burden involved in processing this vital information by learners is lessened. This is important especially in the case of lower-proficiency learners, whose L2 repertoire is limited, and in the case of demanding learning tasks, such as understanding the functioning of a new L2 grammatical structure. This is in line with Iluk's (2008: 36) explanation that processing input and conscious noticing of the structures that it contains consumes considerably more cognitive energy than the same mental activities performed in the L1. In this way, the L1 performs a compensatory function in facilitating complex L2 processing. Nation (2003) illustrates this point with the results of two studies (Lameta-Tufuga 1994 and Knight 1996), where the use of the L1 in preparatory discussions alleviated the cognitive burden of understanding instructions for tasks. The learners understood the ideas faster, familiarized them-

selves with L2 vocabulary and ultimately performed in the L2 at a higher level. With regard to this argument, Swain and Lapkin (2000: 269) conclude that "to insist that no use be made of the L1 in carrying out tasks that are both linguistically and cognitively complex is to deny the use of an important cognitive tool."

Moreover, the incorporation of the L1 can make learning more *meaningful* and enhance learners' awareness of their own *learning processes*. This, in turn, can foster the development of independent study skills and contribute to more effective learning. As noted by McMillan and Rivers (2011: 252), in the process of learning the L2, learners deliberately make use of a variety of cognitive strategies in order to understand L2 structures better and to create hypotheses about forms and meanings in the target language. Cummins (2013: 298) argues that teaching techniques based on cross-linguistic comparisons enhance the efficiency of learning and draw learners' attention to L1-based learning strategies, which can prove very useful in their own strategy use for learning L2 grammar.[21] The implementation of L1 clues for making cross-lingual comparisons and analogies as a useful learning strategy was also stressed by James (1996: 146) and Widdowson (2003: 23), who made the point that such strategies are conducive to more autonomous self-study. In order to stimulate these natural processes, many researchers (e.g., Butzkamm and Caldwell 2009; V. Cook 2001) suggest that the L1-L2 connections that learners naturally refer to in their minds should be highlighted by teaching procedures which incorporate the comparison and contrast of the two languages. Gnuzmann (2009: 57) also makes the point that L1 use strengthens the *learner-centered* orientation in the learning-teaching process, which is favored by the cognitive theory of learning. According to this view, the L1 allows for an appreciation of a learners' individualization of the learning process. This is reflected in learners' own choice of learning strategies, reflection, and autonomy – processes which can be positively influenced by referring to learners' L1.[22]

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[21] Cummins (2013: 298) illustrates this suggestion with the example of explaining the word "predict" to French learners: "it makes sense to explain the meaning of the root (from the Latin *dicere* meaning 'to say') and the prefix (meaning 'before') as well as drawing students' attention to the fact that the root and the prefix operate exactly in the same way in the French word *prédire*."

[22] This discussion is also in line with Cummins' (1981) interdependence across languages hypothesis, formulated within his "common underlying proficiency model" (Cummins 1981: 26), which underscores the connections and interrelatedness of learn-

From a *sociolinguistic* point of view, another important advantage of including the L1 in L2 instruction, particularly relevant within the learner-centered approach, is that it allows for the inclusion of learners' *identities* more readily than in the case of monolingual instruction (Brooks-Lewis 2009: 227; McMillan and Rivers 2011: 253). As aptly observed by Inbar-Lourie (2010: 352), the discussion of the roles of the L1 in the contemporary field of L2 learning and teaching goes far beyond its purely pedagogic functions, related to the facilitation of the development of learners' L2 communicative skills and knowledge. It has an important role to play in reflecting current issues involved in L2 pedagogy, such as the aims of L2 teaching in multilingual and multicultural societies, viewing L2 learning as a sociocultural phenomenon, taking into account learners' identity and their functioning as bilingual or multilingual individuals, not only as learners of a foreign language. This socio-affective strand of investigations has been extensively present in the literature (e.g. Antón and DiCamilla 1999; Belz 2003; V. Cook 2001; Liebscher and Dailey-O'Cain 2004). Auerbach (1993) argued very strongly that the place of learners' own languages is directly connected with a recognition of their identities as human beings, and in her recent reflections on her previous publication (Auerbach 2016), she maintains that this remains a crucial issue in L2 education. She states that "classrooms must be safe spaces for learners to bring real-life issues, concerns, strengths, and vulnerabilities, and that honoring first language resources is integral to this project" (Auerbach 2016: 937).[23] Using the L1 in the L2 classroom can be considered as a sign of respect and appreciation for learners as human beings and for their culture, whereas banishing it can be perceived as depriving them "of their normal means of communication and so of the ability to behave fully as normal people. It takes something away from their humanness" (Allwright and Bailey 1991: 173). De la Campa and Nassaji (2009: 743) stress that the L1 "bridges their [learners'] identity as

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ers' academic skills in the L1, such as the understanding of concepts, the use of metacognitive strategies, awareness of metalinguistic processes and pragmatic aspects of language use, with their developing competence in the L2.

[23] Auerbach (2016: 937) links the restraints on the use of learners' L1s (referring to them as 'primary languages') to acts of 'microaggression,' performed in the context of teaching English by "members of the dominant culture." She explains this phenomenon in the following way: "I would now say that enforcing English in ESL classrooms (…) devalues the linguistic resources and hence the identities of some language minority learners under the guise of 'helping' them to learn English."

speakers of L1 with the creation of a new self in the L2," and Gnuzmann (2009: 57) and Rivers (2011a: 104) make the point that optimal L1 use contributes to the development of learners' multilingual and multicultural identities, which is a particularly important issue in the present discussion about the intercultural component in contemporary L2 instruction and about the viability of the "native speaker principle."

A discussion on the sociocultural perspective on the reasons for the choice of a particular language code naturally evokes the topic of *codeswitching* as a phenomenon illustrating L1 use in the L2 classroom, frequently discussed in the current literature. Thompson and Harris (2014: 321) explain that the phenomenon of 'code switching' in the L2 classroom, also referred to as "code mixing, language switching, or language alternation," denotes "[c]hanges from one language to another" or, more specifically, "alternating between two languages in either oral or written expression."[24] Mixing or switching language codes is a sociocultural phenomenon frequently observed in the behavior of bi- or multilingual users. It embraces specific discourse functions involved in organizing and structuring talk, such as summing up an utterance, changing a topic, attracting attention, organizing turn-taking, etc., and is thus discussed both within a sociolinguistic and pedagogical perspectives (Turnbull and Dailey-O'Cain 2009; Üstünel 2016). These phenomena, which contribute to an understanding of the complexity of language processing in multilingual minds, are considered to be a common and very natural part of language behavior in bi- and multilingual settings, and it is important to note that they do not negatively influence the communicative value of messages. According to Macaro, Graham and Woore (2016: 15), codeswitching can be classified within the 'optimal position' view on L1 presence in L2 teaching. Majer (2011: 80) lists 'negotiation repair' and 'metatalk' (usually involving the use of linguistic terminology) as typically occurring in classroom codeswitching, and notes that investigating learners' "metacomments about linguistic tasks" can give a valuable insight into the cognitive processes involved in learning. A number of benefits of codeswitching in L2 learning have been identified. Cahyani, de Courcy and Barnett (2018: 466) stress that it is a strategy that can largely enhance learners' L2 use: "when teachers switch between languages

[24] While researchers agree that the terms 'codeswitching' and 'code-mixing' refer to the integration of two or more linguistic codes by speakers, some see a difference between them, with code-switching denoting inter-sentential, and code-mixing – intra-sentential alterations of language units (Bhatia and Ritchie 1996: 629; Lin 2013: 195).

in order to maximise their instruction, code-switching can function to enhance students' understandings and provide students with opportunities to take part in the discussion." Niżegorodcew (1996: 210-212), while conceding that codeswitching is the most frequently used communication strategy in L2 lessons, lists several of its referential and interpersonal functions, such as negotiating L2 input, appealing for assistance, and conveying attitudes. Similarly, Dailey-O'Cain and Liebscher (2009) found that codeswitching serves identical functions as those performed by bilinguals in naturalistic non-classroom interactions. Therefore, by allowing learners to use their L1 in order to facilitate L2 learning, the teacher also helps them establish a "bilingual community of practice" (Dailey-O'Cain and Liebscher 2009: 143).

A related concept, '*translanguaging*' is a similar, more recent term, defined by García (2009: 45, emphasis in original) as "*multiple discursive practices* in which bilinguals engage in order to *make sense of their bilingual worlds*" (original emphasis). It is a means of mediating cognitively complex activities, particularly useful in the context of bilingual education in making explanations meaningful (García and Wei 2015: 237). Otheguy, García and Reid (2015: 297) explain that a bi- or multilingual speaker has developed a specific 'idiolect,' their own 'mental grammar,' a system which incorporates elements of the different languages they know, and translanguaging is a way of exploiting the full 'linguistic repertoire' by such language users with regard to the specific social situation of a given interaction. Speakers make use of various linguistic resources, from the different languages they know, to varying degrees, depending on the situation; thus, each person's idiolect is different, because it is marked by the multilingual influences in one's mind and a highly idiosyncratic way of making use of them according to communicative needs. The authors make the point that neglecting translanguaging in educational contexts means depriving learners of opportunities to "develop the lexical and structural features for the different social contexts in which they are expected to interact" (Otheguy, García and Reid 2015: 303). García (2009: 47), in her discussion of the teaching implications of the natural processes found in translanguaging, suggests a shift in the teaching orientation from treating the L1 and L2 systems as separate and autonomous to a more flexible strategic use of codeswitching in order to fully exploit the opportunities created by the learners' bilingualism.

Concerning other functions of the L1, Ortega (2007: 235, 2015: 256) makes the point that the L1 enables *collaborative engagement* in L2 learning situations when learners' limited L2 competence does not allow them to perform higher-level mental activities in the target language. Therefore, it serves as a mediating tool for learners on the way to achieving goals which would otherwise be unattainable through the mediation of the L2. Such learning situations, for example, may include reflecting on features of the L2 through discussions among learners, or explaining how to do a difficult L2 task. Villamil and de Guerrero (1996) observed that the use of the L1 served as a very important mediating strategy employed by learners in completing a writing task collaboratively. They noted that "the Ll was an essential tool for making meaning of text, retrieving language from memory, exploring and expanding content, guiding their action through the task, and maintaining dialogue" (Villamil and de Guerrero 1996: 60). Wells (1999: 252) stresses that within the social orientation, the use of the L1 as a tool for collaborative problem-solving activities in L2 learning is no different from any other problem-solving activities in which collaboration is applied. In this way, he argues, this use of the L1 provides an important contribution to exemplifying a sociocultural framework in L2 education. Thus, the L1 creates not only a cognitive, but also an important social space in the L1 learning process, in which learners offer each other help in performing L2 tasks. Antón and DiCamilla (1999: 245), on the basis of their theoretical reflections and empirical findings, conclude that

> the use of L1 is beneficial for language learning, since it acts as a critical psychological tool that enables learners to construct effective collaborative dialogue in the completion of meaning-based language tasks by performing three important functions: construction of scaffolded help, establishment of intersubjectivity, and use of private speech.

In light of these arguments and examples, researchers (e.g. Antón and DiCamilla 1999; Brooks and Donato 1994; Lantolf, Thorne and Poehner 2015; Ortega 2015) agree that from the perspective of the sociocultural theory, the L1 performs a number of functions that facilitate the process of L2 learning. Interestingly, Levine (2014: 338-339) offers a slightly different interpretation of the sociocultural theory in relation to L1 use for L2 grammar learning, giving examples of how the L1 can be used in talking about the grammatical or lexical forms and helping learners focus

their conscious attention on the forms and their learning processes. In this way, Levine highlights the link between *cognitive* functions of L1 use (through consciousness raising) and *sociocultural* functions. He suggests that language processing which includes private speech, either in the form of interpersonal interaction or in a learner's head, includes more than just mere accumulation of rules and patterns, pointing to the complex, social, complex dimension of learning grammar. In a similar way, Swain and Lapkin (2000: 259-260) discuss this function of the L1 (English) in learner-learner interactions about the form and meaning of L2 French grammatical forms.[25]

A number of researchers see a connection between the social dimension of language choice in the L2 classroom and the *affective* side of learning and teaching, stressing that the language of interpersonal interactions might influence the relationships between the learners and the teacher, and, as a result, have an impact on classroom atmosphere. Auerbach (1993: 17) and Majer (2003: 423) suggest that the inclusion of the L1 in didactic procedures can lower affective barriers to effective L2 acquisition, alleviating language and culture shock. Littlewood (2014: 359) makes the claim that at the affective level, at least some L1 use can provide psychological reassurance, offering learners a sense of ownership over learning, and help satisfy the need to personalize communication. Being allowed to make use of their own language as a tool for enhancing understanding in the classroom gives them a feeling of security and confidence, and can shape their positive attitudes toward the learning situation. Schweers (1999: 7) concludes that "[s]tarting with the L1 provides a sense of security and validates the learners' lived experiences, allowing them to express themselves. The learner is then willing to experiment and take risks with English." Deller and Rinvolucri (2002: 28) highlight the affective function of L1 mediation in the learning of grammar: "[g]rammar becomes much less frightening and much more accessible if students are allowed and encouraged to notice the similarities and differences between their own language and English." Indeed, Brooks-Lewis (2009: 224) notes that comprehending what was going on in the classroom was a frequent advantage quoted by her study participants. General-

[25] Levine (2014: 339) sees such procedures as perfect examples of what Larsen-Freeman (2003) calls 'grammaring,' stressing the dynamic nature of the use of grammatical structures, the role of the context and the people who use them, and the conveyance of the identity of language users.

ly, she concludes, the use of the L1 makes it easier for a learner to accommodate to the new, potentially threatening surroundings of an L2 classroom, especially for adults, who are used to controlling the situation in which they participate. Thus, it can "reduce classroom shock." In her study, L1 use was reported to increase learners' confidence and openness to the novel situation. Kim and Elder (2005, 2008) and Sali (2014) refer to the socio-affective side of L1 presence in an L2 classroom as influencing teacher-learner relationships; in their studies, teachers resorted to the L1 in order to make personal connections with the learners, to express feelings of concern and sympathy, and in this way create a positive, warm classroom atmosphere. Although there are no clear rules for code choice in influencing the social and affective dimensions of classroom interactions, a number of studies point to the potential of L1 mediation or code-switching in establishing better interpersonal relationships than is the case in L2-exclusive classroom settings. Addressing these issues, Edstrom (2006) suggests that discussions on the adequacy of L1 use in L2 education are not limited to its medium-oriented goals, but also include value-based, identity-related issues, connected with showing respect to learners as individuals. These factors are important in any educational setting, because they regulate the affective climate for learning.

The final group of functions that can be performed by the L1 in L2 teaching belongs to the 'framework' goals of classroom interaction and is connected with a number of organizational and management issues. The classroom management functions of L1 use are definitely worth highlighting, because, to a large extent, the language choice in this area influences the amount of target language used in the classroom, and can have consequences for language choice for other reasons as well. Therefore, teachers' opinions seem to be divided on whether the L1 or the L2 serves this function best (Mitchell 1988: 31; Littlewood and Yu 2011: 73). On the one hand, management issues create opportunities for message-oriented L2 use, and many researchers (e.g., R. Ellis 1984; Long 1990) see a place and great potential for the L2 as the medium of classroom management interaction in order to give learners an opportunity to engage in genuine classroom communication with a genuine communicative need. On the other hand, however, in lower-proficiency groups, L2 use for management functions will be limited only to the simplest issues, thus other researchers claim that the L1 can be used to mediate such interactions. Piasecka's (1988: 98-99) ideas for the organizing functions that the L1 can serve in an L2 classroom include a

wide range of possibilities: "negotiation of the syllabus and the lesson; record keeping; classroom management; scene setting; language analysis; presentation of rules governing grammar, phonology, morphology and spelling; discussion of cross-cultural issues; instructions or prompts; explanations of errors; and assessment of comprehension." Other didactic functions can include conducting an initial assessment in order to learn about students' needs and aims (Auerbach 1993: 18). It is often highlighted that from a didactic point of view, the L1 often appears to be a time-saving solution, as compared to the use of the L2, which would often mean time-consuming paraphrasing and other strategies to make messages accessible to learners. Sali (2014: 312) found that the translation technique, apart from clarifying meanings in an effective way, helped teachers use lesson time more economically. Similarly, Polio and Duff (1994: 321) and Turnbull and Dailey-O'Cain (2009: 5) note that teachers' L1 use for pedagogical functions saves classroom time and allows more space for L2 discourse in a lesson. Moreover, it facilitates understanding the message by learners. Another important function within the framework-oriented goals concerns the usefulness of the L1 for conveying more emotionally-loaded messages to learners. Sali (2014) explains that using the L1 for managing classroom discipline can have a more powerful impact because it allows the teacher to express their feelings in a more authentic way, therefore, it is often preferred by teachers. Similarly, the L1 is often used in order to draw learners' attention, as L2 attention-getting devices may lack salience and efficiency, often remaining unnoticed by learners.

3.4. Ways of embracing the L1 in instructed L2 grammar acquisition

This section is more practical in scope than the previous ones, because it includes a collection of ideas for making learners' L1 part of their instructed L2 grammar learning. It starts with an explanation that bilingual techniques supplement rather than replace L2-mainly instruction. Then, L1-supplemented and bilingual instructional techniques are presented in order to demonstrate how the L1 can be used by teachers to facilitate learners' L2 development.

3.4.1. The L1 as supplementing L2-medium instruction

It seems to be clear from the discussion in the previous sections that L1/L2 contrastive instruction has attracted revived interest in the area of instructed SLA. However, the aims, scope and forms of such instruction nowadays differ considerably from the traditional CA-oriented teaching based on structural syllabuses, the main difference being that contemporary contrastive instruction is embedded, as much as possible, in communicative practice (Ammar, Lightbown and Spada 2010: 130). Littlewood and Yu (2011: 70) stress that currently advocates of L1 inclusion (e.g., Butzkamm 2003; V. Cook 2001) do not postulate the introduction of the L1 at the expense of the L2, unanimously stating that L2 use needs to be promoted as much as possible in a *communication-oriented* classroom. This approach frequently occurs in recent publications (Atkinson 1993; Butzkamm and Caldwell 2009; V. Cook 2001; Nation 2003; Sali 2014). Littlewood and Yu (2011: 64) stress that although there is a consensus among researchers and practitioners about the necessity of providing opportunities for learners to be exposed to and use the L2 as much as possible, there is no consensus concerning the amount and roles of the L1 in L2 instruction. While some argue for its total rejection, others see a place for bilingual strategies in L2 teaching. Atkinson (1993: 242), arguing for a judicious inclusion of the L1 in L2 teaching, suggests that a 5% L1 to 95% L2 ratio in the classroom should be adequate. Similarly, Macaro, Graham and Woore (2016: 15-16) claim that effective L2 instruction is conducted predominantly through the medium of the L2, although what "predominantly" exactly means may be open to discussion. They claim: "we have come across no empirical studies that demonstrate that an input poor interactional environment (for example, a classroom in which the L2 is used only 30 percent of the time) leads to successful language learning." When discussing the current agreement about the justified presence of the L1 in learning and teaching the L2, Cai and G. Cook (2015: 243) warn against its overuse:

> In their eagerness to roll back the extremism of the monolingual assumption, the advocates of a return to a degree of own-language use have tended to ignore the other side of the coin: the extensive mother-tongue use which characterizes ELT classroom discourse in many parts of the world, whether unofficially, i.e. by teachers departing from syllabuses specifying monolingual instruction, or officially, by teachers following syllabuses which explicitly involve own-language use, for translation or explanation.

Situations in which the L1 largely replaces the L2, instead of supporting and complementing its use, are definitely unwelcome; however, there are factors which are generally considered to influence the L1-L2 proportion. Learners' *proficiency level* in the L2 seems to be among them. Researchers often argue against its use at higher levels, fearing that relying on the L1 for too long can negatively influence L2 acquisition. For example, Harmer (2015: 51) claims that L1-based grammatical explanations and management strategies seem more justified at lower levels; as the level rises, the need to employ the L1 for these functions naturally decreases. On the other hand, Auerbach (1993: 9) notes that L1 use may be beneficial at all levels of proficiency, but *literacy* and formal *education levels* are other factors influencing its choice in teaching adult learners.

Although there are numerous factors influencing language choice in teaching, and the application of the L1 in any instructional setting does have its constraints, it needs to be acknowledged that the existence of the learners' own language in their minds will always have an influence on their processing L2 data. According to Horst, J. White and Bell (2010: 333), "regardless of the extent to which the language teacher avoids using the L1 in class, it is still always there in the minds of the learners," and, as repeatedly stressed by Butzkamm and Caldwell (2009), instead of pretending that the L1 does not exist in learners' minds, it is the task of teachers to exploit this natural tendency in the most optimal way in the didactic process.

In teaching L2 subsystems, L1 use opens up a wide range of options at all stages, connected with the introduction and practice of the new material. At the *presentation* stage, for example, it can convey meaning efficiently and enable students to progress more quickly to the stages of internalization and active use. Atkinson (1993: 26-30) illustrates the use of the L1 in the lead-in and elicitation steps, as well as in checking understanding through concept questions. In presenting structures, making L1/L2 comparisons can facilitate understanding and increase learners' confidence, at the same time contributing to learners' general language awareness. At the *practice* stage, it can provide effective stimuli for students to use and expand their full foreign language competence. Drill-like techniques and translation can elicit target structures and help establish form-meaning connections. Niżegorodcew (2007: 103-104) gives examples of 'classroom grammar talk' in the form of 'elicited recall of grammatical forms' and 'teacher metalinguistic comment during accuracy practice,' both conveyed with the use of an L1-L2 mixture. At the *produc-*

tion stage, L1 use can help create contexts where the L2 is gradually used to express meanings, for example when students brainstorm ideas for a story in the L1 and later write it in the L2.

Gozdawa-Gołębiowski's (2003) *Interface Model* can serve as an example of an approach advocating the inclusion of the L1 in teaching L2 grammar. Discussing the conditions for interlanguage formation, Gozdawa-Gołębiowski (2003: 108) states that an optimal kind of intake is achieved when L2 input is incorporated into a learner's grammatical system, and this happens through pedagogical intervention of three basic kinds. One such form of teaching is through offering explicit explanations of the structures of both language systems; these are 'language awareness' activities. Another option is based on 'consciousness-raising' tasks, in which comparisons between L1 and L2 forms serve as a basis for discovering L2 structures. Finally, 'functional motivation' activities involve "non-linguistic factors to handle a range of cases for which a contrastive account is not available." The Interface Model therefore rests upon the existence of an interface between new knowledge and knowledge already possessed by an individual. For example, new grammar points learned through explanation become part of explicit knowledge which is related in a learner's mind to something familiar, such as implicit L1 or L2 knowledge that has been explicated through language awareness activities. An important point is that although adults have a full command of their L1, it is based on implicit knowledge of language facts, just like much of L2 knowledge. This implicit knowledge allows for production and intuitive feelings about what is well-formed. It can become explicit knowledge through explication offered by language awareness activities, and if it does, it is available for inspection, reporting, and making linguistic comparisons. Therefore, it can be said that "explicit knowledge gained in this way brings about consciousness-raising (C-R)" (Gozdawa-Gołębiowski 2003: 198). C-R is part of the L1/L2 interface, as it helps relate an explanation of an L2 phenomenon to explicated, yet fully proceduralized, L1 knowledge, and the L1 becomes a point of reference for a learner's interlanguage. In this way, by contrasting L1 and L2 forms, learners notice similarities and differences between them. The author further concludes that the new knowledge can contribute to enhanced grammatical correctness and also an accelerated rate of production. In order for this to happen, certain stages need to be followed in the learning process (Gozdawa-Gołębiowski 2003: 201-209):

- **Stage one: initial exposure**
  The learner encounters the new structure in a natural context and is offered a direct translation without attempting structural decomposition.
- **Stage two: imprinting**
  The same sequence, lexically invariant, will be presented to the learner a few more times, at reasonable intervals, until a mental representation of the L1 – L2 meaning equivalence has been established.
- **Stage three: explication**
  The relevant area in the source language is examined with a view to facilitating L1:L2 interface, i.e. only those aspects of the structure are highlighted which may have a bearing on the explanation stage.
- **Stage four: explanation**
  Based on the previously encountered examples, the relevant grammatical regularity in L2 is revealed, directly or indirectly, inductively or deductively.
- **Stage five: interface formation**
  The L1 rule (a surface reflection of the subconscious competence) becomes part of the learner's declarative knowledge but modified to absorb the relevant L2 data.
- **Stage six: interlanguage expansion**
  The new rule becomes implicit and (possibly) automatized.

Thus, the Interface Model offers a suggestion for linking form-focused instruction and L1 data in pedagogical intervention, based on an assumption that relying on previous knowledge (here: the L1) is a natural need of learners trying to make sense of new L2 data that they are exposed to. According to Paradowski (2007: 157-158), this model of teaching, through drawing on L1-L2 interfaces, is mentally engaging for learners (as they make inferences on the basis of L1 forms), helps avoid unnecessary metalinguistic explanations, and lowers learners' affective filters by anchoring new information in what they are familiar with. He also stresses the process rather than product-orientation in the L2 development that this procedure stimulates by offering a learner opportunities for a gradual construction of the L2 forms and form-meaning mappings according to their own pace and in relation to the state of previous knowledge.

3.4.2. Examples of bilingual techniques in teaching L2 grammar

According to Stern (1992), bilingual teaching techniques can be divided into the following four categories: 1) techniques involving L2-L1 media-

tion, 2) techniques involving L1-L2 mediation, 3) techniques for comparing and contrasting the L1 and the L2, and, finally, 4) techniques for using the L1 as a means of communication and instruction. It is worth stressing that the application of bilingual techniques in the teaching of L2 grammatical system is by no means limited to sentence translation with the aim of illustrating the meaning of L2 structures at the presentation stage. The examples of techniques presented in this section will aptly illustrate Littlewood's (2014) assertion about their applicability at any stage of teaching grammar structures.

Generally, ***L2-L1 mediation*** assists the learner in understanding and practicing the L2 with reliance on the medium of the L1. *L2-L1 translation* is perhaps the best known example of such learning and teaching procedures. As a teaching technique, translation has been largely neglected by both manuals for teachers and research literature. G. Cook (2010: xix) explains that translation is a very broad and flexible notion, and it stretches over "a well known and long-established continuum with the tightest word-for-word translation at one end and the loosest paraphrases and interpretations at the other." Similarly, Stern (1992: 295) defines translation as a whole set of techniques, ranging from glossaries, which give learners help with lexical items, to full translations of texts. L2-L1 translation can be used in learning grammar, although it is not equally appropriate for all structures (those which can lead to interference are probably the most appropriate). Generally, translating texts is a demanding activity and needs to be used with caution; otherwise, it can lead to problems with comprehension of L2 texts.[26] James (1996: 146), commenting on the merits of contrastive analysis procedures in contemporary L2 learning and teaching, stresses that translation evokes linguistic reflection in learners, and raises their *consciousness* of the target language features. Translation is a useful C-R technique, as it requires mental activity on juxtaposing two language systems, not only the grammatical and lexical forms, but also cultural connotations and ways of expressing different notions.

'Mirroring', another L2-L1 technique, aims to clarify both the function and form of utterances in the L2 through making their meaning and structure clear and 'transparent' (Butzkamm and Caldwell 2009: 106).

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[26] Using L2-L1dictionaries is a didactic option accompanying the translation of words or texts; however, an indiscriminate use of a dictionary can lead to negative effects; hence, using a dictionary requires special skills which learners should develop.

Although it uses elements of L2-L1 literal translation and adaptation, it incorporates more resources than mere word-for-word translation. It can, for example, involve translation of relevant morphemes, or the mirroring can be incomplete, as it focuses only on the relevant part of the target structure. The following examples devised by Butzkamm and Caldwell (2009: 106-107) illustrate such cases:

> "Die grüner Äpfel
> *The greens apples (to illustrate that in German adjectives can have endings)
> The green apples"

> "Thélo na páo stin Athína (Modern Greek)
> *I want that I go to Athens
> I want to go to Athens"

As noted by Butzkamm and Caldwell (2009), mirroring is not applicable when the L1 and L2 forms are identical or if their differences are obvious to learners on the basis of other clues. Although not popular in modern L2 classrooms due to the overuse (and misuse) of literal translation (with which it is associated and which it resembles) in some past approaches and methods, it can be a very useful device in teaching not only syntax, but also word formation and idiomatic phrases (Butzkamm and Caldwell 2009: 107). The mirroring technique, which uses specially prepared and carefully selected examples of L1 forms, can successfully distract learners from resorting to negative transfer from the L1. Its other advantage lies in the fact that it encourages learners to discover the logic of L2 structures. Moreover, because it often leads to the creation of funny utterances in the L1, the form of L2 structures may be remembered better. Finally, it helps learners develop 'a feel for the L2' and reduces the need for lengthy explanations of how L2 structures are formed and what they mean.

Interpretive treatment of texts is another example of L2-L1 mediation. In this technique, as explained by Stern (1992: 295), the aim of L1-based devices for an interpretive treatment of L2 texts is to help learners with understanding L2 input and comment on it. It is important that texts for this technique are built into relevant context, for example of social or cultural value. In such cases, the use of the L1 for their interpretation seems to be particularly valuable, as without L1 mediation learners could find

the target texts too difficult. In the teaching of grammar, it is important that the input contains examples of the target structure, which learners are expected to notice through the interpretation tasks. Possible specific techniques promoting L2 text interpretation include:

> providing a title in L1; introducing or summarizing an L2 text in L1; explaining the context of a text in L1; explaining the meaning of a text by brief commentaries including occasional prompts and glosses; asking L1 questions about an L2 text; discussing in L1 the significance of an L2 text; providing a detailed analysis in L1 of an L2 text. (Stern 1992: 295)

In principle, ***L1-L2 mediation*** is more difficult and linguistically more demanding for L2 learners. Although it offers valuable learning opportunities, the use of L1-L2mediation techniques is, therefore, more constrained. Stern (1992: 295-296) explains that translating sentences *from the L1 to the L2* was first introduced in the 18th century as a way of learning grammar, and translating texts from the L1 to the L2 has been a part of British and French traditions of teaching and testing the L2 at advanced levels, especially at universities. Although L1-L2 sentence translation is still a widely used grammar teaching technique, Stern (1992: 296) finds it a highly problematic one for several reasons. First of all, it is based on the assumption that a learner already knows the L2, and in principle is not supported with the provision of a model or standard, as in the case of L2-L1 translation. As a result, this technique can lead to a false assumption that building L2 sentences merely requires a knowledge of the L1 and the use of a bilingual dictionary. This can be avoided if sentence translation is part of wider grammar practice and serves as a cue for highlighting and working on new L2 structures. As a conclusion, Stern (1992: 297) admits that L1-L2 translation can be effectively used, but its use is constrained by the proficiency level of the learners, and the stage and purpose of instruction. It probably works best with advanced learners who want to explore complex semantic and discourse relations in the L2. According to Stern (1992: 294), there are also other techniques which offer mediation from the L1 to the L2, some of which include: "using an L1 word, phrase, or sentence as a cue for L2 speaking or writing; (…) creating a context in L1 for L2 speech acts; simultaneous or consecutive interpreting from L1 to L2."

Butzkamm and Caldwell (2009: 124-130) and Scheffler (2013a) discuss and illustrate the application of a semi-communicative *bilingual drill*, a technique utilizing both L2-L1 and L1-L2 mediation, which

guides learners from highly controlled to freer grammar practice. The procedure consists of seven steps, starting with *presentation and clarification*, where an L2 model sentence is written on the board together with its literal and proper L1 translations, to present the "anatomy" of the structure. In *easy substitutions*, similar patterns are drilled through teacher prompts and learner responses. In *'loaded' sentences and contextual diversity*, the pattern is drilled with the use of examples of sentences which are more meaningful and contain more affective content. At the *over to you* stage, learners start testing hypotheses and experimenting with the structure while making their own sentences with the target structure, and in *pupil presentation and communicative interludes*, they get semi-communicative practice by using their sentences in interactions. Finally, the *synthesis: creative writing* step consists of learners' production of brief written texts with the use of the pattern they have practiced.

Another group of bilingual techniques comprises ***L1/L2 comparing and contrasting***, also referred to as 'cross-linguistic comparison' or 'contrastive metalinguistic input.' Stern (1992: 297) suggests a number of teaching techniques within this broad strategy, the aim of which is to help a learner discover L1/L2 similarities and differences in order to learn more effectively. These techniques include:

> Juxtaposition of L2 text and its translation into L1 on opposite pages or interlinearly.
> Reading text in L2, simultaneously listening to text spoken in L1 on tape.
> Listening to text spoken in L2, reading text in L1.
> Practicing L2 speech sounds in contrast to equivalent L1 sounds.
> Studying and practicing grammatical features of L2 in comparison with L1, and drawing attention to similarities and differences.
> Comparing lexical items in L1 and L2.
> Comparing semantic or discourse features in L1 and L2.
> Comparing sociolinguistic and cultural features in the home and target cultures
> (Stern 1992: 297)

Techniques based on comparing languages can give learners fresh insights into how languages are structured and how they operate the form-meaning connections. An example of a cross-linguistic comparison activity is given by Deller and Rinvolucri (2002: 31). Its title is *Contrastive Grammar Recognition*. In this activity, selected forms in an input text

(preferably a dialog set within a social context) are highlighted and it is given to learners together with its translation. Learners mark the L1 equivalents of the highlighted forms, compare them and discuss the most interesting or tricky ones. This is the text suggested by Deller and Rinvolucri (2002: 31):

> A: Happy Christmas, John.
> B: Hi, Pa.
> A: Well, (1) DID you get what I sent you?
> B: (2) YEP. Thanks.
> A: Well, what (3) DO you think? The people in the shop told me it was the (4) VERY latest model ...
> B: It's well good, b u t ...
> A: But what, exactly?
> B: You see, I'm not (4) INTO Action Men right now. I mean, I (5) USED to be ...
> A: Perhaps we could return it to the place I bought it.
> B: (6) DO THAT.
> A: So, (7) HOW's it going?
> B: OK.
> A: (8) HOW's school?
> B: Fine.

The authors note that apart from consciously focusing on conducting the comparisons, as a result of simultaneously focusing on understanding the meaning of the input, learners are likely to absorb some of it in a less conscious way.

Levine (2014) suggests activities aiming at enhancing learners' critical reflection about the role of the L1 in learning L2 grammar. The following example illustrates an attempt to engage learners in ***communicating about grammar***, including some grammatical features of the L2, but also of their own language and other languages they might know. The title of this activity is *Critical reflection on grammar and identity***.** Learners explore a speech by former Bayern-Munchen soccer coach Giovanni Trapattoni, made in L2 German, and attempt to correct the grammar mistakes that they notice. The questions the learners consider in this particular example activity are as follows (Levine 2014: 344):

> A. What aspects of Trapattoni's grammar are in fact 'grammatical', i.e. they follow the rules for standard German that you have learned in your German classes?

B. In what ways is Trapattoni's particular grammar of German 'regular,' in that it follows (its own) recurring patterns or rules? (or not)
C. For those in the class who know Italian, Spanish or another Romance language, can you identify areas where Trapattoni may be influenced by his first language in formulating German sentences?

Later on, the focus is on more general issues, as seen in those example questions:

A. How successful was your group at correcting Trapattoni's German? What proved easy to correct? What was most difficult? Or impossible? Why do you think that is?
B. Would you be able to devise a 'grammar' of Trapattoni's German? Write down a few of the 'rules' or patterns this grammar would have.
C. What part does Italian (Trapattoni's native language) play in your thinking about the speech, or the activity of correcting it so that it matches grammatical German?
D. In light of the video you have watched, can you imagine Trapattoni reading/speaking your corrected version? Why or why not?
E. Moving away from Trapattoni and back to YOU now, discuss how you think you and your German, at your current stage of German proficiency, would be perceived by native-speaking Germans. Can you identify specific features of your own German that would be considered 'off' or 'incorrect' or even comical by Germans? Why are these features a problem?

The aim of the activity is to link a focus on the influence of the L1 on L2 grammar with a focus on the extent to which grammar influences the whole message, including its sociocultural background, as students have a chance to "reflect on larger questions of the relationships between the L1, grammar, and identity" (Levine 2014: 345).

Summing up, it should be underscored that whether a bilingual teaching technique is appropriate or not depends on different factors, involving the specificity of learners and the aims of instruction. While they can be very helpful in clarifying the forms and form-meaning mappings of L2 structures, offering assistance to learners, and raising their L2 consciousness and sensitivity to the L2 grammatical system, they need to be applied with caution, because their usefulness may not be universal.

Recapitulating the section on the pedagogical uses of bilingual teaching techniques, it can be stated that:

- In contemporary L2 instruction, bilingual/contrastive techniques supplement L2-based teaching, while instruction is primarily conveyed through the medium of the L2.
- Bilingual techniques for teaching L2 grammar can be divided into: L2-L1 mediation techniques, L1-L2 mediation techniques, L1-L2 comparison techniques, and techniques for using the L1 as a means of communication. It is important to embed these techniques into communication-oriented activities.

3.5. An empirical perspective on the L1 in L2 learning and teaching

The renewed interest in the role of the L1 in L2 learning and teaching has been reflected within the scope of empirical investigations undertaken in the field of applied linguistics. The review of selected studies presented in the following subsections will first examine research into the amount and functions of the L1 in L2 teaching (3.5.1.), then learners' and teachers' attitudes toward the presence of the L1 in the learning-teaching process will be outlined (3.5.2.). Although these two areas are not directly connected with the main topic of the present work, they seem to be indirectly linked with it: the amount and functions of the L1 and the willingness to incorporate it in didactic procedures do influence their effectiveness in learning. The last subsection, 3.5.3., will contain a review of previous research on the effects of L1 mediation on the processes and attainment in learning L2 grammar, which is of direct relevance within the scope of the present work.

3.5.1. The amount of L1 use and its functions in L2 teaching

The amount of and reasons for the use of the L2 and/or the L1 as a resource and as a medium of instruction have been explored by classroom observation studies, and by reports provided by teachers and learners. Some studies of this kind will be reviewed here, and the main information about them will be summed up in Table 9 (in chronological order).

In an early study, conducted by Duff and Polio (1990), involving observations of 26 lessons of different L2s at a US university, the percentage of the observed use of the L1 ranged between 10 and 100 (68% on average). The teachers' language proficiency was not a factor in the language choice, as all of them were native speakers of the target language and proficient in the learners' L1 (English). The factors which could have influ-

enced the L1/L2 choice were: L1-L2 distance, educational regulations, lesson objectives and materials, and the teachers' professional training. Polio and Duff (1994) in another, qualitative, analysis of a subset of data from the previous study, identified the following groups of factors influencing L1 use: 'classroom-external' factors, such as learners' proficiency, teachers' background, and L1/L2 distance, and 'classroom-internal' factors, related to the types of activities and the aspects of the L2 being taught. The most frequently recorded classroom internal reasons for L1 use were: providing classroom administrative vocabulary, explaining grammar, classroom management, and indicating empathy and solidarity.

Table 9. A summary of selected studies on the proportion of L1 use and its functions in L2 learning and teaching.

Researcher(s)	Aim	Methods	Participants/setting	Results
Duff and Polio (1990)	To explore the ratio of L1 use in L2 classrooms	Observations of 26 lessons of 13 different languages; questionnaire; interviews	13 native-speaker teachers of different languages; university classes in US	L1 use ranged between 10% and 100% of lesson time
Polio and Duff (1994)	To identify the functions of L1 use in an L2 classroom	Interviews	6 native-speaker teachers of different languages; university classes in US	The L1 was used for both medium and framework functions: teaching grammar and vocabulary, management, and interpersonal relationships
Rolin-Ianziti and Brownlie (2002)	To explore the ratio of L1 use in L2 classrooms in relation to activity types	Audio recordings of lessons	4 teachers of French; university in Australia	L1 use ranged 0-18% for communicative lessons; 0-55% for grammar lessons
Liu et al. (2004)	To explore teachers' code-switching practices in L2 teaching	Video recordings of lessons; questionnaires; interviews	13 Korean teachers of English; high schools in South Korea	L1 use ranged between 10% and 90% of lesson time

Kim and Elder (2005)	To explore language choice in L2 classrooms and their functions	Audio recordings of lessons	7 native-speaker teachers of different languages; high schools in New Zealand	L1 use ranged between 12% and 77% of lesson time; the functions differed according to pedagogic focus of activities
McMillan and Turnbull (2009)	To explore teachers' L1 and L2 use in the classroom	Interviews and classroom observations	2 teachers in a French immersion program (1 native speaker, 1 non-native speaker) in Canada; high school	Both teachers used learners' L1 at least to a certain extent; the main function was for grammar and vocabulary teaching
De la Campa and Nassaji (2009)	To explore the amount and purposes of L1 use in L2 lessons	Audio and video recordings of lessons; interviews; recall sessions	2 native speakers of German; university in Canada	11% of words in L1; functions: instructional and interpersonal; teaching experience as a factor
Hall and G. Cook (2013)	To explore the amount and functions of L1 use in L2 teaching	Questionnaire; interviews	2,785 teachers of L2 English from 111 countries (17 were interviewed)	80% teachers used learners' L1; functions: academic, managerial, social
Sali (2014)	To explore the purposes of L1 use in L2 lessons	Classroom observations; interviews	3 Turkish teachers of English; high school	Functions of L1 use: academic, managerial, social
Thompson and Harrison (2014)	To explore the amount and functions of L1 use in L2 lessons	Video recordings of lessons	16 teachers (native and non-native) of L2 Spanish; university in US	L1 ratio in less proficient classes: 0% to 42% for teachers and 7% to 50% for learners; intermediate classes: between 1% to 55% for teachers and 3% to 72% for learners.

According to more recent accounts, the proportion of L1 use in an L2 classroom seems to be even higher. Littlewood and Yu (2011) point out that many teachers are so accustomed to using the L1 in class that in some cases they use it up to as much as between 70% and even 90% of lesson time. For example, in Kim and Elder's (2005) study conducted on seven native-speaker teachers of Japanese, Korean, German and French in secondary schools in New Zealand, the learners' own language use by the teachers ranged between 12% and 77% of classroom time. In Rolin-Ianziti and Brownlie's (2002) study the range of L1 use by four teachers of L2 French was 0-18% for communication-oriented classes. It went up to over 55% in the case of a grammar lesson. In Liu et al.'s (2004) study conducted in South Korea, the range of L1 use was even greater and amounted to between 10% (in a model lesson, the aim of which was to demonstrate L2-only instruction) and 90%, with an average of 40%. Thompson and Harrison (2014) investigated 16 teachers' (some native speakers, some non-native speakers) and students' L1 English use in L2 Spanish classes at a university in the US. L1 use ranged between 0% and 42% (16% on average) for the teachers, and between 7% and 50% (26% on average) for the students in lower-proficiency classes. In an intermediate class, the teachers' L1 use ranged from 1% to 55% (9% on average), and learners' – from 3% to 72% (27% on average). Interestingly, there were no major differences between native-speaker and non-native speaker teachers in this respect. The most frequent reasons for L1 use were: translation of vocabulary (31% of instances of code-switching), classroom management issues (20.8%), and grammar explanations (18% of code-switching instances). The percentage values revealed in the findings outlined above are largely congruent with other similar studies. Macaro (1997: 96), after a review of several studies conducted on L1 use in L2 teaching in different settings and contexts, concludes that "the 'virtually all' designation of L2 use" is extremely rare, at least in EFL monolingual classrooms. Teachers tend to use the L1 even if their educational policy favors monolingual instruction. McMillan and Turnbull's (2009) study, involving two teachers, indicated that even in French immersion programs, despite very clear guidelines from the Ministry of Education concerning L2 exclusivity, some teachers make use of learners' L1, at least at initial stages of instruction.

De la Campa and Nassaji (2009), using audio and video recordings, interviews with teachers and stimulated recall sessions, investigated L1 English use by two native-speaker teachers of L2 German, one experi-

enced, the other novice. The word count showed that on average more than 11% of all words uttered by the teachers were in the L1, with considerable variation among particular lessons. The researchers identified a total of 14 specific uses of the L1 applied by the two instructors, again, with great variation of their occurrence, of which 'translation' was the most frequent reason for L1 use in both teachers' classes, and 'personal comment' was the second most frequent, but only for the more experienced teacher. Generally, while the experienced teacher used the L1 for both instructional and personal reasons, the novice used it more for translating new vocabulary. Sali (2014) observed 15 EFL secondary school lessons conducted by three Turkish teachers, all of whom made use of the L1 in the lessons under investigation. The reasons why the L1 was used fell into three main categories: academic (e.g. explaining aspects of English, translating words and sentences, eliciting, talking about learning, reviewing, and checking comprehension), managerial (e.g. giving instructions, managing discipline, monitoring, and drawing attention), and social/cultural (e.g. establishing rapport, drawing upon shared cultural expressions, and praising). The L1 was most frequently employed (59% of total L1 use) for academic purposes (in particular, for providing explanations about grammar points), less frequently (27% of L1 use cases) for managerial, and the least frequently (13%) for social/cultural reasons.

While the studies reviewed so far have investigated rather low numbers of teachers, Hall and G. Cook's (2013) study was different in this respect. In this large-scale investigation, a survey was conducted on a considerable sample of 2,785 teachers of L2 English at different levels of school (primary, secondary, and tertiary) from 111 countries. Moreover, interviews were conducted with 17 of them, each representing a different country, with the aim of exploring their practices and beliefs concerning L1 use in their teaching. Out of the total sample, 61.5% said they used the L1 to explain vocabulary, and 51.8% - to explain grammar. These were the most frequently quoted reasons for resorting to the L1. Further on the list were keeping rapport with the group (53.4%) and maintaining discipline (50.4%). Moreover, several of the participants listed the considerable role of the L1 in awareness raising activities, involving comparing and contrasting L1 and L2 forms. Although most of the teachers reported using the L1 for various purposes and with different frequency, over 20% of them admitted their lessons were conducted through the exclusive medium of English. When asked about the perceived L1 use by learners, the

participants admitted that over 70% of their learners frequently used bilingual dictionaries and compared L1 and L2 grammatical structures.

Macaro (2009: 39) concludes that the results of such studies would contribute to a more comprehensive picture of teachers' L1 use practices if more specific information about the type of instruction was provided (usually reports of studies omit this information). However, such investigations are a valuable contribution to the discussion of the place of the L1 in L2 learning and teaching. The great diversity in the frequency and volume of L1 use is not surprising, given that the studies were conducted in different educational settings, within different national and cultural backgrounds, guided by different educational policies and methodological traditions. Inbar-Lourie (2010: 354) recapitulates the findings of research on teachers' use of the L1 in L2 teaching in the following way:

> [t]hese practices seem to be individualized, and to depend on factors related both to the teaching context and to personal variables, such as local policy, the level of instruction and level of students' proficiency, lesson contents, objectives and materials, the teachers' pedagogical training, experience in the TL culture and perceived program goals.

Interestingly, though, the functions of L1 use found by the researchers appear to be similar irrespective of the research context, with grammar explanations being high on the list of L1 functions.

3.5.2. Attitudes toward the L1 in L2 learning and teaching

Studies investigating attitudes have involved both learners and teachers; some of the studies have been conducted on pne of the two groups, and others – on both of them. A summary of the studies (in chronological order) discussed in this subsection is presented in Table 10.

Table 10. A summary of selected studies on learners' and teachers' attitudes toward L1 use in L2 learning and teaching.

Researcher(s)	Aim	Methods	Participants	Results
Liao (2006)	To explore learners' beliefs about translation in L2 teaching	Questionnaire; interview	351 L1 Taiwanese learners of L2 English (10 were interviewed)	Positive attitudes toward translation; proficiency factor important

Rolin-Ianziti and Varshney (2008)	To explore learners' attitudes toward L1 in L2 teaching	Questionnaire	52 L1 English learners of L2 French at a university in Australia	Highly positive attitudes to L1 use for teaching vocabulary and grammar, mixed attitudes toward its framework and affective functions
Song and Andrews (2008)	To explore teachers' views on L1 in L2 teaching	Interviews	4 L1 Chinese teachers of L2 English at university	2 teachers' highly positive attitudes, 2 teachers' negative attitudes toward L1
Varshney (2008)	To explore learners' attitudes toward L1 in L2 teaching	Questionnaire	70 L1 English learners of different L2s at a university in Australia	Positive attitudes toward L1 in learning grammar and vocabulary, but also toward L2 exclusivity
Brooks-Lewis (2009)	To explore learners' attitudes toward L1 in L2 teaching	Learning diaries; questionnaire	256 L1 Spanish students of L2 English at a university in Mexico	Highly positive attitudes toward teachers' L1 use in classes
McMillan and Rivers (2011)	To explore teachers' views on L1 in L2 teaching	Questionnaire	29 native English speaker teachers at a university in Japan	Positive attitudes toward L1 as useful for learners
Rivers (2011a)	To study the effects of autonomy-promoting strategies on awareness about language choice	Learning diaries and responses to activities	21 L1 Japanese learners of L2 English at a university in Japan	Learners' awareness of L1 functions was raised; more favorable attitudes toward L1 appeared
Rivers (2011b)	To observe the effects of autonomy-promoting strategies on L1/L2 choices	Responses to activities	43 L1 Japanese learners of L2 English at a university in Japan	Guilt and disappointment as a result of L1 use in class

Hall and Cook (2013)	To explore teachers' attitudes toward L1 use	Questionnaire; interviews	2,785 teachers of L2 English from 111 countries (17 were interviewed)	Overall, negative attitudes toward L1; a complexity of factors
Scheffler (2013b)	To explore learners' beliefs about translation in L2 teaching	Questionnaire	45 L1 Polish learners of L2 English at high school	Positive attitudes toward translation in learning grammar
Fernández-Guerra (2014)	To explore learners' beliefs about translation in L2 teaching	Questionnaire	155 L1 Spanish learners of L2 English at college	Positive attitudes toward translation as a useful and motivating technique in learning grammar
Wach (2016)	To explore learners' opinions about the usefulness of L1 in learning L2 and L3 grammar	Questionnaire; interviews	85 L1 Polish learners of L2 English and L3 Russian at university	High appreciation of L1-based strategies in learning grammar; proficiency and language distance as factors
Scheffler et al. (2017)	To explore learners' attitudes toward L1 in L2 learning	Questionnaire; interviews	194 L1 Polish and 197 L1 Norwegian learners of L2 English at high school	Positive attitudes toward L1 use in learning L2 in both nationality groups

Brooks-Lewis (2009) in a study conducted at two Mexican universities on a population of 256 L1 Spanish students learning L2 English collected qualitative diary- and questionnaire-based data which revealed learners' highly positive reactions to their teachers' use of the L1 for social as well as didactic (cross-lingual and cross-cultural comparisons) purposes. Numerous benefits were listed by the study participants, most of them pointing to the fact that "the inclusion of the L1 instigated awareness and positive self-evaluation" (Brooks-Lewis 2009: 233). More specifically, the participants provided the following reasons for their decidedly positive perceptions of the beneficial role of the L1 in L2 learning: "being able to understand what is being said; being able to participate; making the learning meaningful and easier; dissolving the sense of rupture in knowledge, along with ideas of

forgetting or replacing identity or the L1; promoting confidence and a sense of achievement; and inspiring language, learning, culture, and self awareness" (Brooks-Lewis 2009: 234). Rivers' (2011b) participants, 43 mixed-ability L1 Japanese learners of L2 English at a Japanese university, where the L2-only policy was enforced, used English in 90% of their utterances, but the remaining 10% of utterances in Japanese evoked a number of negative feelings in them, such as the feeling of guilt, disappointment and resignation. The researcher interprets this as a sign of "the stigmatisation of the L1 by associating its use with failure" (Rivers 2011b: 40). In another study, Rivers (2011a), setting aside the English-only policy for the duration of the study, used reflective strategies with 21 Japanese learners of English in order to enhance their awareness about the roles of the L1 and the L2 in learning. The procedures were effective in raising the participants' awareness of the beneficial roles of the L1 and, as a result, contributed to the development of their autonomy as learners. Rolin-Ianziti and Varshney's (2008) study looked into 52 L2 French learners' views on the use of the L1 (English) at a university in Australia, in a context where L2 exclusivity was promoted and encouraged. Highly positive attitudes toward the use of the L1 for medium-oriented goals, particularly in learning vocabulary, and grammar, were revealed; for example, 88% of the respondents agreed that the L1 facilitates the understanding of L2 grammar. The students' opinions about L1 use for framework-oriented and for the affective goals were mixed, with no consistency in the answers. Mixed beliefs about the role of the L1 were also revealed in Varshney's (2008) study, conducted at an Australian university on 70 learners of six different foreign languages. While 86% of the sample agreed that the L1 helped them with understanding L2 grammar concepts and that translation is a good way to remember vocabulary, 74% also agreed that exclusive L2 use contributes to effective learning. Overall, however, over 70% of the learners saw a place of the L1 in learning the L2.

Other studies focused on learners' opinions about the usefulness of the L1 in the learning processes that they employed. Scheffler (2013b) investigated the views on the usefulness of translation as a learning task held by 45 Polish high school learners of L2 English. The evaluation questionnaire was conducted after the students performed translation-based and communication-oriented grammar activities. The usefulness of both kinds of activities was acknowledged by the learners; apart from being appreciated as facilitating learning, the sentence translation task was perceived as "a refreshing change from regular classroom activities" (Scheffler 2013b: 266). Both use-

fulness and motivating factors of translation as a learning task were also revealed in Fernández-Guerra's (2014) study, conducted on 155 Spanish learners of L2 English at a college (majoring in English and Computer Science), which confirmed the high levels of appreciation of the L1 from the learners' perspective. A majority of the respondents considered the L1 to be a "normal" element in the process of learning the L2, and they expressed their positive opinions about translation and cross-linguistic comparisons as contributing to learning. They also ranked translation as the most motivating kind of task; interestingly, it was ranked higher than speaking, listening, reading and writing activities. Moreover, translation was selected as the third most useful kind of activity in L2 learning (following listening and speaking activities). Liao (2006) explored the beliefs of 351 Taiwanese college students of L2 English about the usefulness of translation as a learning strategy. The results revealed largely positive opinions about the effects of translation on learning outcomes. As stated by the researcher, "generally they expressed the inevitability of translation use at their present phase of learning, and considered translation as a positive learning resource for them to comprehend, memorize, and produce better English, to acquire English skills, and to complete various English tasks" (Liao 2006: 209), although advanced learners' beliefs were less favorable than those of less proficient learners. A similar tendency, demonstrating a generally high appreciation of L1-based strategies in learning L2 grammar, was revealed in Wach's (2016) investigation conducted on 85 Polish learners of L2 English (upper-intermediate level) and L3 Russian (beginner level). Although the use of L1-based strategies was reported by the respondents in learning both languages, language typological distance and proficiency levels turned out to be factors influencing their perceived usefulness. Scheffler et al. (2017) report the results of a study conducted on two groups of high-school learners of L2 English: Polish (n=194) and Norwegian (n=197) with the aim of exploring their practices of and attitudes toward the use of the L1 in learning English. Although both groups' evaluations of the usefulness of their own languages were rather positive, the Polish students' responses revealed a greater reliance on the L1 in learning grammar and vocabulary, while the Norwegian learners stressed a greater role of the L1 in regulating their anxiety levels, in classroom management issues, and in explanations of complex tasks and topics. The researchers conclude that the learners' L1s were perceived by them "as important tools for cognitive support" (Scheffler et al. 2017: 12).

Other studies on attitudes toward the L1 focused on the teacher perspective. Again, a high diversity of opinions was reported. Song and Andrews (2008) investigated the views on L1 usefulness in L2 learning and teaching held by four Chinese teachers of L2 English in tertiary institutions in China. The participants opinions were divided; two of them claimed that the L1 should be avoided, because it hinders the development of thinking in the L2 and interferes with L2 learning processes, and the remaining two gave arguments for the facilitative role of the L1 in clarifying concept meaning and enhancing L2 thinking. In McMillan and Rivers' (2011) investigation, 29 native-speaker teachers of English in Japan held diversified opinions about learners' L1 use by the teacher (41% for and 41% against) and by learners (38% for and 38% against), generally criticizing the "English only" principle as not suitable to all contexts and all learners.

The previously quoted large-scale study conducted by Hall and Cook (2013) on a sample of 2,785 teachers from 111 countries, apart from investigating the amount of L1 use, also explored the teachers' attitudes toward L1 use. A majority of the respondents held rather negative attitudes toward L1 use (61.4% agreed that the L1 should be excluded from L2 instruction, and 73.5% admitted that in their teaching the L1 was allowed only on certain occasions, for specific purposes). On the other hand, only about one third of them admitted to feeling guilty when using the L1 or allowing learners to use it (a less obvious finding than in other studies), and over half of them appreciated the role of the L1 as a means of expression of learner identity. A complex picture of teachers' attitudes toward the L1 in L2 teaching emerges from these data, a picture which portrays teachers' belief in the predominant role of the L2 as a medium of classroom communication and a learning resource, and at the same time, in the beneficial functions served by the L1. The complexity of the picture is strengthened by the substantial influence on teachers' beliefs regarding L1 use of factors such as teaching experience (more experienced teachers appeared to be "more pragmatic and less dogmatic" (Hall and G. Cook 2013: 24) than less experienced ones, and their attitudes toward L1 use were more lenient), professional context (e.g., 63% of the respondents stated that an English-only policy was imposed on them) and the type of institution (attitudes toward L1 use were considerably more favorable in state than in private schools, e.g. 69% as compared to 43%, respectively, used the L1 to explain grammar). Moreover, a majority of the respondents indicated that in their pre-service training they had been discouraged from

L1 use, and this could have shaped their attitudes as well. Other factors taken into account included learner proficiency (it was considered more appropriate for lower levels) and sharing the L1 (more appropriate with classes with shared L1 than with mixed L1s). On the basis of the results, the researchers conclude that "own-language use is an established part of ELT classroom practice, and that teachers, while recognising the importance of English within the classroom, do see a range of useful functions for the own language in their teaching" (Hall and G. Cook 2013: 27).

The picture emerging from an overview of studies on learners' and teachers' attitudes toward the use of learners' L1 in the learning and teaching the L2 clearly indicates that both learners' and teachers' views are influenced by a number of factors. In the case of the learner perspective, these factors include: the teaching procedures that the learners have experienced (with or without the L1) (Macaro 1997), individual factors, such as age, contextual factors connected with the teacher and classroom atmosphere (Levine 2003; Macaro and Lee 2013), the students' level of L2 proficiency (Prodromou 2002), the policy underlying an institution's regulations for L1/L2 use, a teacher's experience and training (Chavez 2016), the educational contexts, and the L1-L2 distance (Scheffler et al. 2017). In the case of the teacher perspective, similarly, attitudes are shaped by numerous factors, such as the teachers' own experiences as learners, previous teacher education, course constraints and requirements, and official policy (Auerbach 1993; McMillan and Rivers 2011), to name just a few. Since teachers' language choice is often motivated by their willingness to facilitate L2 development in learners, it seems to be interesting and relevant to scrutinize the effects of the L1 on L2 learning. Therefore, the following subsection contains an overview of selected studies into the role of the L1 in learning the L2, with a special focus on L2 grammar.

3.5.3. The effects of the L1 on instructed L2 grammar acquisition

Several studies have investigated transfer effects, resulting from L1-L2 similarities and differences, on the processes involved in the learning of the L2, especially its grammar. It has been revealed by some investigations that L1 knowledge can either interfere with or facilitate the learning of the L2, as L1 transfer influences how L2 structures are processed, due to learners' extensive experience with L1 forms. These studies illustrate a

new research perspective on contrastive analysis, set within a cognitive framework. Trenkic, Milkovic and Altmann (2014: 238) note that both L1 transfer and L2 processing effects ("L2 processing may generally be less automatic and more resource-draining than L1 processing") can negatively influence L2 grammar production. For example, if learners' L1 lacks articles, they have consistent problems with using articles in L2 English. Such learners have learned to ignore the target features in L2 input. N. Ellis (2006: 178) refers to this phenomenon as "automatically learned inattention." On the other hand, the processing of L2 can be facilitated in the case of L1-L2 similarities, and the processing of such structures has been reported to be similar in the two languages. A review of selected studies that have explored the effects of L1 background as well as of contrastive instruction on learning L2 grammatical forms will be presented in this subsection. Their description is accompanied by a tabulated summary following a chronological order (Table 11).

Table 11. A summary of selected studies on the effects of the L1 on learning L2 grammar.

Researcher(s)	Aim	Methods	Participants	Results
Kupferberg and Olshtain (1996)	To test the effects of processing enhanced contrastive input on acquiring difficult grammar forms	Pre- and post-tests (with recognition and production tasks)	137 (16 y.o.) L1 Hebrew learners of L2 English	Explicit exposure to contrastive linguistic input facilitated the acquisition of the target forms
Kupferberg (1999)	To test the effects of contrastive metalinguistic input on the acquisition of grammatical aspect	Pre- and post-tests (written comprehension and production tasks: personal stories)	59 adult advanced L1 Hebrew learners of L2 English	Metalinguistic contrastive input was beneficial for the production of the target forms
Chan (2004)	To explore the effects of L1 transfer in the use of L2 grammar structures	Oral interviews; translation tasks; grammaticality judgment tests	710 L1 Chinese learners of L2 English	Evidence of syntactic transfer in L2 production, particularly by lower-proficiency learners and with regard to complex L2 structures

Spada, Lightbown and J. White (2005)	To investigate the effectiveness of explicit contrastive instruction	Pre- and post-tests; interviews	90 adolescent L1 French learners of L2 English	Contrastive instruction was effective, especially for the structure whose misuse disturbs communication
White, Muñoz and Collins (2007)	To test the effectiveness of explicit teaching using a rule, contrastive information and contextual practice on learning grammar	A pre- and post-test (a correction task and an oral picture description); a meta-comment interview	56 French L1 and 44 Catalan/ Spanish bilingual learners of L2 English (13-14 y.o.)	Explicit instruction involving contrastive information resulted in more effective acquisition of the L2 form and enhanced awareness
Collins (2007)	To investigate the effects of language distance on the ease or difficulty of learning L2 grammar	A gap-filling task	70 L1 French and 69 L1 Japanese learners (university students) of L2 English	Pedagogically manipulated activities were equally effective for learners with different L1 backgrounds
Izquierdo and Collins (2008)	To test the influence of L1 background on learning L2 grammatical structures	A close passage test; retrospective interviews	28 L1 Spanish and 32 L1 English learners (young adults) of L2 French	Similar L1 background led to focusing on the syntactic, and different L1 background – on the semantic aspects of the target forms
Park and Han (2008)	To see whether the L1 influences the noticing of features in L2 input	Processing an input text	30 L1 English and 30 L1 Japanese adult learners of Korean	L1 background predisposes learners to notice some L2 features and disregard others
Ammar, Lightbown, Spada (2010)	To investigate learners' awareness of L1-L2 differences and its relation to L2 learning	Grammaticality judgment test; scrambled questions task; interview	58 L1 French learners of L2 English	Contrastive awareness correlated positively with learning the target L2 grammar forms

Corcoll (2013)	To evaluate the effects of code-switching on young learners' language awareness	An activity survey; a group interview; language tests; motivation survey	25 Catalan-Spanish child learners (7-8 y.o.) of L2 English	The use of the L1 in the classroom enhanced learners' awareness about the nature of language and its learning
Källkvist (2013)	To determine the effects of L1-L2 translation on learning difficult L2 forms	Audio-recording of classes	79 high-level adult Swedish learners of L2 English	Translation stimulated a higher focus on L2 morphosyntactic features and more learner-initiated discourse
Park (2013)	To compare L2 input processing strategies in learners with different L1 backgrounds	Learner-generated questions on an unenhanced input text; questionnaire	30 L1 English and 30 L1 Japanese adult learners of Korean	L1 background and L1-L2 distance influences L2 input processing strategies
Tolentino and Tokowicz (2014)	To examine the effects of instruction (crosslinguistic information with and without a rule) and L1-L2 similarity on learning L2 morphosyntax	A pretest and 3 grammaticality judgment post-tests	34 L1 English learners of a miniature version of L2 Swedish	L1-L2 similarity positively influenced the processing of L2 data; contrastive enhanced input was the most effective technique
De la Fuente (2015)	To explore the role of language choice (L1 and L2) in giving explicit feedback during CALL form-focused tasks	Pre- and post-tests, content- and form-focused tasks with computer-delivered feedback, think-aloud protocols	40 L1 English learners of L2 Spanish	Feedback in L1 was more effective than feedback in L2 in enhancing comprehension and production of the target form

Some of the studies have investigated the effects of learners' L1 grammatical systems on L2 acquisition. Chan (2004) traced the following five types of errors resulting from syntactic transfer in Chinese learners of L2 English: problems with the copula, with the placement of adverbs, with the "there be" structure, with the use of relative clauses, and with verb transitivity. Data were elicited through translation and grammaticality judgment tasks in two modes: oral interviews (n = 42) and written tests (n = 710). The results revealed an "overwhelming influence of the L1" (p. 66) in the participants' interlanguage production. This tendency was observed in both lower- and higher-proficiency learners, although in the case of the lower-proficiency learners transfer was a more prevalent compensation strategy. Formulating possible teaching implications, the researcher states, "[i]n order to help students become aware of L1 influence and self-correct when interference occurs, teachers can highlight salient structural and lexical differences between the L1 and the L2" (p. 68). Collins (2007) set out to investigate the challenges experienced by L1 French (n = 70) and L1 Japanese (n = 69) learners in the learning of past simple in L2 English, assuming that transfer from French would result in using the present perfect tense instead of past simple. The research task consisted in a manipulation of verbs from four semantic categories (states, activities, accomplishments, and achievements) in gapped texts. Similar patterns of test completion were observed in the groups, which led the researcher to conclude that although the L1 influences L2 acquisition, challenges caused by L1 background can be overcome by explicit pedagogic intervention. Izquierdo and Collins (2008) conducted a study on L1 Spanish (n = 31) and L1 English (n = 46) learners of L2 French with the aim of exploring the influence of the L1 system on the acquisition of perfective and imperfective forms in the L2. The results pointed to an advantage for the Spanish learners, whose L1 system contains forms similar to the target structures. The L1-L2 similarity turned out to be beneficial in the distribution and use of the L2 structure for Spanish learners, while the L1 English learners tended to rely more on the semantic features of verbs. However, both groups of learners experienced a difficulty with the appropriate use of the target forms in non-prototypical contexts, which, according to the researchers, signals a need for explicit pedagogic guidance to help learners process the target structures (Izquierdo and Collins 2008: 365).

Apart from exploring the effects of L1-L2 similarities or differences on the acquisition of L2 forms, some studies aimed to investigate the ef-

fects of such contrastive information on learners' noticing and awareness of L2 features. How to implement the L1 as a resource in raising learners' consciousness of the form and meaning of L2 grammatical structures is an important question. Poldauf (1995: 6) suggests that first, features that the two languages share should be focused upon, and then learners' attention should be drawn to L1-L2 differences, but, as pointed out by James (1996: 146), highlighting contrasts in the early stages of study can have the beneficial role of both motivating learners and warning them against resorting to transfer too readily. Ammar, Lightbown and Spada (2010) investigated the awareness of L1-L2 differences, as well as the effects of this awareness on learning how to form questions in L2 English. The participants were 58 L1 French learners aged 10-11. The data were collected through a grammaticality judgment test (in a pre- and post-test design), a scrambled sentences task (done in pairs), and interviews. Although the target structure had been taught to the learners, no explicit information about the L1/L2 comparison was provided. The test and task results showed that the students' performance was heavily influenced by the L1 pattern; a majority of them were, however, largely unaware of the L1 rules and thus unaware of the L1-L2 differences. Those of the students who were aware of the L1-L2 contrasts performed the tasks more accurately. A didactic implication formulated by the researchers is that learners need "instructional guidance", in the form of contrastive explanations, "to identify problematic relationships between L2 and L1 linguistic features" (p. 142). Park and Han's (2008) study, conducted on 60 participants, L1 Japanese and English learners of L2 Korean with zero-knowledge of the target language, aimed to investigate whether the L1 influences learners' noticing of features in L2 input. The general finding revealed that while some of the features were salient to all participants because of their recurring pattern, some L1-based differences in their noticing behavior were observed as well. The L1, therefore, is among factors (apart from input frequency, learners' current interlanguage development, previous learner training, etc.) that drive internal salience of L2 input, i.e. salience generated not externally, e.g. by the teacher, but by learners themselves. In a subsequent analysis of the same empirical data, Park (2013) looked into the kind of input processing strategies employed by the two groups of participants (L1 English and L1 Japanese). The results indicated that different strategies were used by the participants with different L1 backgrounds: while the L1 English learners focused on the formal properties of the new

language (Korean) input, especially its word order, in trying to make sense of the target grammar, L1 Japanese learners employed a rather top-down processing, primarily focusing on the meaning of the input. The researcher concludes that the L1 background and L1-L2 typological distance influenced the L2 input processing behavior.

Other studies investigated the effects of contrastive information presented through some instructional procedures, e.g. input enhancement or bilingual techniques, on the learning of L2 grammatical features. Kupferberg and Olshtein (1996) and Kupferberg (1999) addressed the effects of input enhancement through making the target features salient to learners with the application of comparing and contrasting L1 and L2 forms. More specifically, Kupferberg and Olshtein (1996) tested the efficiency of applying contrastive analysis as a tool for stimulating learners' cognitive processing in enhancing functional and structural salience of difficult L2 English structures (relative clauses and compound nouns) in 137 intermediate learners, native speakers of Hebrew, and found beneficial effects of making L1-L2 comparisons on the acquisition of the target forms, when compared with inductive instruction based on communicative tasks. In another study, Kupferberg (1999) tested the effects of contrastive metalinguistic input (CMI) as a means of teacher-induced salience on the acquisition of grammatical aspect (the past perfect tense) in 59 advanced learners of English (teachers and student teachers at a university in Israel). The results showed that CMI had a positive effect on participants' use of the target form in a production task (telling personal stories). The results led the researchers to formulate a claim that CMI-based instruction assists learners in making interlingual comparisons involving forms they have noticed in L2 input, a procedure that they get involved in even without a teacher's help (Kupferberg 1999: 212). Moreover, CMI contributed to the retention of the forms in learners' short-term memory. Källkvist's (2013) study involved a total of 79 Swedish high-proficiency learners of L2 English, who attended a meaning-oriented, skills-development course at the university. Within the treatment, some of the students received a mixture of tasks including translation, and others received a mixture of tasks excluding translation. The data, elicited through audio-recordings of 19 classes, revealed a significantly higher number of languaging episodes (especially initiated by the students) stimulated by translation than any other of the tasks (e.g. gap-filling and composition). As concluded by the researcher, "[i]n this way, the translation tasks were used to reach one of

the learning outcomes of the course, namely to engender communication about English – about the targeted grammar but also about other language features" (Källkvist 2013: 229).

Spada, Lightbown and J. White (2005) investigated the effects of explicit instruction focusing on L1-L2 contrasts in L2 structures that are often problematic for learners because of their "misleading" L1-L2 similarity. The participants were 90 L1 French Canadian adolescents (aged 11-12) learning L2 English, and the target structures were the possessive determiners *his* and *her*, and question formation involving inversion. Pre- and post-tests, consisting of oral production and written tasks, as well as post-treatment interviews, served as research tools. The test results showed the effectiveness of explicit contrastive instruction in the case of determiners; in the case of question formation, the effects were less visible. The researchers conclude that this kind of explicit form-focused instruction is more necessary and effective with forms which carry more meaning (a wrong inversion in a question form does not influence meaning as much as a wrong possessive determiner). White, Muñoz and Collins (2007) set out to investigate the effects of explicit instruction of English possessive determiners *his* and *her* with the use of a rule, L1-L2 contrastive examples, and contextualized practice. The study was conducted on 13-14 year-old students in two settings: in Canada, on 56 French L1 students, and in Spain, on 44 bilingual Catalan-Spanish learners. The participants were divided into treatment and control groups in each setting. The study lasted for six weeks, and students' knowledge was measured through a pre- and post-test design consisting of a written correction task and an oral picture description task, accompanied by a brief interview. The treatment groups (French and Catalan-Spanish) outperformed the control groups in the post-test, and they achieved significantly larger pre- to post-test gains in the written correction task; in the oral production task, the gains were significantly higher for the treatment groups, although the post-test performance was at similar levels. These results point to the effectiveness of explicit instruction involving contrastive information on the acquisition of the target form. Moreover, the treatment groups used more metalinguistic information in the interviews, which points to higher levels of L2 awareness. Corcoll (2013) conducted a study on a group of 25 Spanish-Catalan children learning L2 English in order to explore the effects of the use of language-oriented activities involving code-switching on the participants' language awareness. The research tools used were: a number of

activities, a group interview and two surveys. The qualitative analyses revealed a considerable increase in of language awareness and metalinguistic skills, demonstrated in the ability to think and talk about language features, emerging as a result of code-switching.

Tolentino and Tokowicz (2011), on the basis of a review of studies which used functional magnetic resonance imaging (fMRI) and event-related potentials (ERPs) to investigate the role of L1/L2 similarity in morphosyntactic processing of the L2, concluded that crosslinguistic similarity appeared to be an important factor in L2 processing. This led the researchers to conclude that "adult L2 education may benefit from an approach that takes the L1 into consideration, even when behavioral performance is high, perhaps leveraging learning with more easily processed crosslinguistically similar forms and directly addressing transfer errors" (p. 121). In their further empirical investigation of these issues, Tolentino and Tokowicz (2014) explored the interrelated influence of the type of instruction and the degree of L1-L2 similarity on the learning of L2 grammatical structures. They used three types of instruction: (1) using L1-L2 contrastive color-highlighted input, (2) using L1-L2 contrastive color-highlighted input together with rule explanation, and (3) using nonsalient, not enhanced input, to teach structures which were (1) similar in the L1 and the L2, (2) dissimilar in the L1 and the L2, and (3) unique to the L2. The participants were 34 L1 English students at a US university, and the target forms came from a miniature version of Swedish (372 sentences). A pre-test and three grammaticality judgment (GJT) post-tests served as data elicitation tools. The results revealed an effect of L1-L2 similarity on learning, as similar and L2 unique forms led to greater accuracy on the tests than dissimilar forms. Certain effects of instruction techniques were also revealed. Enhanced input was helpful in learning across all conditions, while provision of metalinguistic rules was effective in the case of L2 unique forms. Unenhanced input appeared to be the least effective technique. The study offers important insights into the role of crosslinguistic distance and the role of the L1 in stimulating optimal learning mechanisms.

Finally, in De la Fuente's (2015) study, 40 adult learners of L2 Spanish performed form-focused tasks in a CALL environment (using Blackboard Learn software). Metalinguistic corrective feedback provided in the L1 appeared to be more effective on the comprehension and production of the target structure than such feedback in the L2. The researcher interprets this finding in terms of varying degrees of cognitive demands in processing

complex grammatical information. Examples from the protocols showed that participants in the L2 feedback group needed to first 'decode' the feedback by translating it into the L1 before they could process it for information about the structure, which required substantial cognitive effort and negatively influenced their performance on subsequent tasks. It was thus concluded that explicit metalinguistic feedback was particularly beneficial if conducted in the L1, allowing learners to access and process knowledge of advanced, complex L2 grammatical structures.

The following picture emerges on the basis of the studies reviewed in this section:

- The L1 is widely used by L2 teachers, although its amount varies in accordance with contextual (the curriculum, type of school, objectives), learner-related (proficiency, needs), and teacher-related (education, beliefs) factors. Teaching L2 grammar is high on the list of reasons for L1 use.
- Despite variations in attitudes toward the L1 in L2 learning and teaching due to a multitude of factors, generally, both learners and teachers hold positive opinions about the usefulness of learners' L1, largely believing that it facilitates teaching and benefits L2 development.
- L1-L2 similarity usually results in facilitated processing of L2 grammar; these effects are strengthened by appropriate contrastive instruction, which also compensates for L1-L2 distance. Contrastive techniques enhance learners' noticing and processing of L2 structures.

3.6. Concluding remarks

This chapter has aimed to demonstrate that there are several important roles that learners' L1 can perform in the process of learning and teaching another language. Different theoretical positions have been outlined in order to underscore the evolving perspectives on this issue. Although there is still no consensus among SLA researchers and teachers concerning how much L1 is justified and for what specific purposes, it can be concluded that generally, in light of current research, the assumption that best practice in L2 teaching involves L2 exclusivity has been seriously challenged. Despite voices warning against abandoning the monolingual principle, it

can be seen that the application of the L1 can enhance learners' engagement and achievement in the L2. The following quotation by Cummins (2013: 302) aptly summarizes a prevailing view on L1 presence in L2 instruction: "[s]tudents' L1 can be a powerful intellectual resource, and bilingual instructional strategies can usefully complement monolingual strategies to promote more cognitively engaged learning."

For this reason, the use of learners' L1 in the learning and teaching of L2 grammar has been a recent area of interest to researchers and practitioners. Most specific uses of the L1 in making sense of grammatical structures in the L2 seem to rely heavily on learners' conscious processing of the new material. Providing grammatical explanations, making comparisons between the L1 and L2 systems, as well as applying different variants of the translation technique require learners' deliberate focus on L2 syntactic patterns in a conscious, explicit way. It appears, then, that referring to the L1 as a tool in learning L2 grammar concurs with the current appreciation of explicit approaches to L2 grammar instruction.

Chapter 4

Methodological concerns in research on consciousness in instructed learning of L2 grammar

4.0. Introduction

This chapter is devoted to a literature review on ways of *researching consciousness* in the area of ISLA, specifically in instructed learning of L2 grammar. To this end, the chapter will illuminate the available options in the methodology of conducting studies on consciousness in the field of SLA and demonstrate what procedures have been utilized in contemporary investigations into consciousness-related processes in explicit L2 learning. Such a discussion is considered to provide a theoretical and methodological justification for the selection of specific procedures in the study described in Chapter 5.

Chapter 4 consists of three main sections. First, in section 4.1., problems with researching the concept of consciousness will be outlined. This brief introductory section will be followed by a review of data elicitation techniques typically applied in research on explicit L2 learning (section 4.2.). Section 4.2. will close with a presentation of methodological designs applied in selected examples of studies measuring various dimensions of consciousness and explicit knowledge in the learning of L2 grammar. Because the think-aloud method is at the heart of the study described in Chapters 5-7 of this work, the entire section 4.3. will be devoted to a discussion of methodological issues involved in the application of this data elicitation method. Like section 4.2., this section will also conclude with a review of selected examples of studies, but this time ones which made use of the think-aloud method in exploring L2 grammar learning. Attention will be drawn to the aims of these studies, the kinds of stimuli they were based on, and the samples they investigated.

4.1. Challenges behind researching consciousness

Planning and conducting studies on consciousness, in the field of SLA and other fields, pose a considerable challenge to researchers. Summing up this point, Tulving (1993, after Leow, Johnson and Zárate-Sández 2011: 61), wrote, "[c]onsciousness as an object of intellectual curiosity is the philosopher's joy and the scientist's nightmare." Reasons for the difficulties faced by researchers, as well as a number of suggestions for overcoming them, are discussed in this section. A justification for introspective methods in studying mental states and processes, and general guidelines on conducting research on consciousness in learning the L2, will be outlined.

4.1.1. Is consciousness measurable?

Consciousness is a construct that is particularly difficult to investigate. An obvious reason for this is that consciousness is a state of the mind, and, as aptly put by Shatz (1977, after McLaughlin et al. 1983: 141), "[t]he windows to our minds are unfortunately rather clouded." Naturally, it is not possible to get direct access to another person's mental processing. Gass and Mackey (2017: 1) stress that while traditional SLA research has focused on language production in the form of utterances made by learners, the kind of data it yields is not particularly helpful in understanding the mental processes involved in learning. A related problem is the fact that consciousness is a 'first-person' phenomenon (Searle 2002; Van Gulick 2018). Various levels of consciousness or the lack of it can only be perceived by the person who is experiencing a given situation, hence ways of measuring consciousness in an objective manner probably do not exist. In a similar vein, Schmidt (1995: 5) asserts that consciousness "is essentially a private, subjective phenomenon, perhaps inaccessible to precise measurement," which is one of the important reasons why it has not received sufficient interest from SLA research. At the same time, however, while admitting that consciousness is undeniably difficult to research, Schmidt (1995: 5) goes on to assert that this notion constitutes such an important part of learning that if it were neglected by research, considerable data on "the private, subjective experiences of learners as they grapple with language" would be missed. Therefore, empirical investigations into the presence (or absence) and degree of consciousness in the process of learning, as well as its effects on learning outcomes, are undoubtedly worth the effort.

Taking into account the problems with investigating consciousness and related concepts, such as attention and awareness, Rebuschat et al. (2013) make the point that there are basically two approaches toward their measurement. On the one hand, researchers might deliberate on how to measure awareness at the time of *encoding*, i.e. while participants are engaged in a learning task (e.g., Godfroid and Schmidtke 2013; Leow 1997). Within this line of research, consciousness is investigated at the *online* stage of *knowledge construction*, "where the encoding or accessing of incoming experimental information takes place" (Leow, Johnson and Zárate-Sández 2011: 62). On the other hand, what can also be researched is awareness of what has been *learned*, i.e. of the *product* of learning (e.g., N. Ellis 2005; Hamrick and Rebuschat 2012; Rebuschat and J. N. Williams 2012). In such studies, learners reconstruct and retrieve the knowledge they gained in a learning task, and they indicate whether and to what extent they were aware of the targeted language, such as a grammatical form or rule, a lexical item, etc. In the latter case, such investigations are often referred to as measuring *explicit knowledge* of L2 features. To this end, techniques to measure consciousness in L2 learning largely overlap with measures employed in researching explicit learning and explicit knowledge.

In light of this variety in approaches, as concluded by Leow, Johnson and Zárate-Sández (2011: 62), an overview of studies which have aimed at researching consciousness in SLA is particularly informative, because it reveals a number of methodological options and approaches "employed to investigate this slippery construct." These various approaches often differ widely in how the concept of consciousness is operationalized in a given study, or, in other words, what specifically the object of a given investigation is. Given the inherently complex and multidimensional definition of the term 'consciousness' and related terms (which was outlined in Chapter 1, section 1.1.), it is not surprising that research on consciousness in language learning also embraces other concepts defined as different levels and kinds of consciousness, such as awareness, attention, noticing, control, and knowledge. Ahn (2014: 56) blames the lack of precision in the definition of these terms for frequent inconsistencies in researchers' choice of appropriate methods to operationalize and measure them.

It needs to be pointed out that the nature of cognitive processes involved in processing L2 input (which is the main concern of the study described in the following chapters of this work) has been the object of considerable recent research. Leow et al. (2014: 112) highlight a shift of re-

searchers' focus in input studies. They observe that previously, SLA research focused more on the *features of input* (e.g. Hatch 1983), whereas contemporary research seems to be more interested in how learners acquire the L2, and, therefore, increasingly tends to include *processes* employed by learners in order to attend to, understand and internalize L2 data from input. In other words, recent investigations focus on how learners make *input-based inferences* in order to receive and produce new L2 data. Within this orientation, the processes which play a major role in the early stages of L2 learning, namely input- and intake-processing, include attention, noticing, and awareness, all of them related to the concept of consciousness.

4.1.2. Introspection in L2 research

Taking into consideration the problems with measuring consciousness, the application of *introspection* as a research methodology appears to adequately address the needs of embracing *mental processing*, including consciousness and related processes, in L2 empirical investigations. This is how Gass and Mackey (2017: 1) define introspection and justify its usefulness in this line of research:

> The assumption underlying introspection, in general, is that it is possible to tap into and document a learner's internal processes in much the same way as one can observe external real-world events. This is predicated on an additional assumption, namely that humans have access at some level to their internal thought processes and can verbalize those processes.

Ericsson and Crutcher (1991) and Ericsson (2003) note that observation of one's thoughts in order to get an inner perspective can be traced back to ancient times, and that Aristotle is considered to have been the first scholar who applied this technique to understand the structure of thinking. Introspection as a research method was already appreciated by the famous American psychologist William James, who wrote: "Introspective Observation is what we have to rely on first and foremost and always. The word introspection need hardly be defined – it means, of course, the looking into our own minds and reporting what we there discover" (1890, as cited in Ericsson and Simon 1993: 50). Gabryś-Barker (2009) explains that introspective research was stimulated by human interest in what goes on in the mind and in what people think about, initially operationalized as self-

observation. This transformed into laboratory-based controlled observation, receiving greater recognition as a scientific method of data elicitation. At the turn of the 20th century, the first introspective studies appeared, mostly interested in the study of consciousness, yielding "sensory and imaginal components reported by the subjects" (Gabryś-Barker 2009: 29). Michońska-Stadnik (2018: 154) adds that before introspective methods came to be criticized within behaviorist research paradigms, they enjoyed great popularity in various branches of intellectual human activity, influencing, among other areas, the 'stream of consciousness' strand in early 20th century literature.

As noted by Calderón (2013), introspective methods of data elicitation have been applied in SLA research for at least three decades. Gabryś-Barker (2014: 93-94) sees the introduction of this research orientation as a result of the influence of the cognitive theory of learning in L2 studies, which brought a shift from a focus on the product to a focus on process in forming learners' competence. The nature of *human learning*, *problem-solving* and *information-processing* came to be at the core of investigations. This shift reflected SLA researchers' dissatisfaction with the behavioristic approach, based on stimulus-response links, as a means of explaining L2 learning mechanisms. As a result, there is currently a "rapidly growing interest in introspective methods for studying experience and cognitive phenomena" (Ericsson 2003: 1), in psychology and L2 studies.[1]

The main premise behind such methods is an assumption that they "probe the subjects' internal states," allowing researchers to access the course of their study participants' *cognitive processes* and get an insight into their *consciousness* (Ericsson and Simon 1993: 1). The usefulness of such methods is acknowledged by Mackey and Gass (2005: 77), who argue that they make it possible for researchers to stimulate participants' reflections on mental processes, and therefore appear to provide relevant information about consciousness or its absence in L2 learning. In a recent publication, Gass and Mackey (2017: 3) explain, "[i]ntrospection assumes that a person can observe what takes place in consciousness in much the same way as one can observe events in the external world."

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[1] It is important to note that introspective methods, exemplified by verbal reports, are treated as a source of valuable *L2 data*, in line with the hypothesis put forward by Ericsson and Simon (1993: 61): "verbal behavior is to be accounted for in the same way as any other behavior, that is, by developing and testing an information-processing model of how information is accessed and verbalized in response to stimuli."

According to Mackey and Gass (2005: 77), verbal reports (which will be discussed in more detail later in this chapter, in section 4.2.) constitute a particularly relevant technique for gathering introspective data. Tavakoli (2013: 702) defines verbal report as a qualitative data collection method which consists of oral records of an individual's thought processes, provided by the individual while thinking aloud either during or immediately after completing a task. Tavakoli stresses that although verbal reports provide a verbalization of thoughts, they do not 'mirror' the thought processes. Instead, they represent what is currently available in the short-term memory, the actual cognitive processes have to be inferred on the basis of the elicited data. Although they offer "access to processes that are unavailable by other means" (Mackey and Gass 2005: 77), their validity and reliability have often been questioned. Ericsson and Crutcher (1991: 57) present the following methodological concerns that introspection has raised:

> (1) whether subjects can give detailed descriptions of thoughts - the nature of thinking is too dynamic to make such descriptions possible; (2) whether the reported characteristics are valid - in introspection, subjects' reports have a privileged status inconsistent with traditional science based on reliable inter-subjective observations; and (3) whether the act of introspection can be performed without changing the process of thinking - efforts to uncover specific information about a thought transform the mental state corresponding to that thought.

Introspective methods include both online and off-line reporting: the online (concurrent) stage of construction involves the encoding and accessing of incoming experimental information and includes verbal reports in the form of think-aloud protocols, whereas the off-line (retrospective) stage of reconstruction involves the retrieval of stored knowledge after it has been initially processed and includes off-line verbal reports and oral interviews (Calderón 2013: 105). According to Cohen (1996: 13), introspection "encompasses a variety of measures intended to provide mentalistic data regarding cognitive processing. An important element in these techniques is that participants verbalize their thoughts, on the basis of which the processes taking place in their minds are revealed." Cohen (1996: 13) further explains that introspective techniques elicit data of the following types:

> (1) self-report: learners' descriptions of what they do, characterized by generalized statements about learning behavior—e.g., "I tend to be a speed listener" (2) self-observation: the inspection of specific rather than generalized language behavior, either introspectively, i.e., within 20 seconds of the mental event, or retrospectively—e.g., "What I just did was to skim through the incoming oral text as I listened, picking out key words and phrases" and (3) self-revelation: "think-aloud," stream-of-consciousness disclosure of thought processes while the information is being attended to – e.g., "Who does the 'they' refer to here?"

In a later publication, Ericsson (2003) acknowledges that although nowadays the application of more rigorous research procedures helps avoid most of the methodological problems leading to a violation of the validity and reliability of elicited data, some types of verbal reporting can be more problematic than others and thus making a distinction between different types of verbal reports while discussing their advantages and possible drawbacks is crucial. Summing up a discussion of the benefits and potential pitfalls of using introspective methods, he writes, "[i]n the current exciting quest to better understand consciousness it is hard to overestimate the importance of rigorous data-collection methods that produce independent scientific evidence" (Ericsson 2003: 15). Some of the crucial ways of ensuring the validity and reliability of data elicitation through constructing an appropriate research design are outlined in the following subsection.

4.1.3. Research design concerns in studying consciousness in SLA

Ericsson and Crutcher (1991: 69-70) make the point that one of the reasons why introspection has become recognized as a valid research procedure is that "there is an established consensus on criteria for acceptable methods of data collection," and call for the selection of those introspective methods "that yield reliable data that can be validated by other means." Leow (2015a) elaborates on several *methodological issues* which are relevant in every study, but in particular in conducting studies on consciousness and consciousness-related concepts in SLA. As he notes, observing a high level of methodological consistency is particularly important in investigations which attempt to get access to learners' internal processing. In such investigations, researchers try to explore "what the learner is currently thinking, processing or reacting to during exposure to L2 data" (Leow 2015a: 136), which requires an appropriate research design in order to collect data that are robust enough.

Therefore, Leow (2015a: 109) discusses the relevance of the internal and external *validity* of any research, which he calls "the heart of the research design." He explains that internal validity concerns whether the elicited data match the research questions, or, in other words, whether the interpretations of the findings are related to the aims of the study. For example, in research measuring attention, awareness, and other kinds of mental processes, internal validity is increased when there is a control group, with participants randomly assigned to groups, when both independent and dependent variables are explicitly described, and when information about inter-rater reliability is provided. Moreover, in studies with high internal validity, the 'Hawthorne effect,' which refers to participants in one of the research groups performing better than usual because they have been assigned to a particular research condition, is nonexistent or minimized (Leow 2015a: 114). As for measurement criteria, he points out that *process measures* (such as think alouds) should be employed, and that it should be ensured that participants follow the instructions as closely as possible. Summing up conditions for achieving high internal reliability in research on mental processes, such as attention and awareness, Hama and Leow (2013) indicate that the following four criteria should be met: adequate operationalization of the independent variable, application of a measure sensitive enough to ensure a cause-result relation between the independent variable and the results, sufficient control over most variables, and application of appropriate statistical tools to analyze the data. According to Leow (2015a), concurrent data elicitation techniques are the most reliable in providing information about the nature of cognitive processes employed in a learning task. Only with the use of concurrent techniques can the researcher detect the levels of cognitive effort or awareness applied in a learning task. Therefore, he argues, "[t]he inclusion of more online data elicitation procedures (…) certainly augurs well for more robust research designs" (Leow 2015a: 118).

External validity denotes the generalizability of the findings to the researched population and, possibly, also to other settings. Leow (2015a: 110) cautions that a study never has external validity if it lacks internal validity. External validity is enhanced if a study meets certain criteria. First of all, its hypotheses or research questions should be based on theory or research. Otherwise, it may lack a solid framework and the interpretation of the results may deviate from established theories. Secondly, the research sample needs to be appropriately characterized in the description

of the study, with a presentation of crucial factors, such as the participants' level, gender, age, learning experience and intensity, etc. Such information will make replication studies possible. Moreover, participants' knowledge of the target material should be assessed prior to the treatment, which is usually done with the application of a pre-test. If participants already display some familiarity with the target structures, this information should be provided. Finally, a study has a higher external validity if delayed measures of long-term effects of the treatment are provided. This is usually done with the use of a delayed post-test and gives information about the retention of the knowledge gained.

Roehr-Brackin (2015: 125-126) makes the point that a written modality and a lack of time pressure are among optimal conditions for the development of explicit knowledge, hence empirical investigations into conscious learning are likely to possess these traits. Typical *tasks* include the identification of grammatical categories (often with the use of metalinguistic terminology), error correction, and the provision of grammatical rules. Placing explicit knowledge research within complex systems theory, Roehr-Brackin (2015) sees a need to complement investigations of conscious learning with measurements of learner internal resources, such as "working memory capacity, language learning aptitude, cognitive/learning style, and other individual difference variables" (Roehr-Brackin 2015: 127). It is also recommended that data on external resources that a learner makes use of be included. Employment of measurements which yield quantitative data, such as tests, could be insufficient in tapping consciousness in learning. Such procedures should therefore be complemented by a more qualitative orientation to data elicitation in order to provide more comprehensive information on explicit learning processes.

The following points can serve as a summary of the section on the challenges of researching consciousness in L2 studies:

- Consciousness, a private and subjective first-person phenomenon, is particularly difficult to measure, as no external method will capture its essence.
- Procedures such as tests can only address the product orientation to learning, which may be interpreted as indirectly linked with consciousness.

- Introspective methods are thus a much more appropriate way of researching consciousness, enabling an insight into the learner's mental processing.
- When planning studies on consciousness, researchers need to cater for internal and external validity issues in research design.

4.2. Researching consciousness in SLA: An overview of data-elicitation methods

A number of approaches and specific methods have been applied in studying conscious learning processes and outcomes in SLA. Techniques based on verbal reports are of special importance here, because they provide insights into a first-person perspective on participants' mental processing, which is, due to the difficulty of measuring consciousness (discussed in section 4.1.), often considered to be the most desirable type of information in this kind of research. Verbal reports include specific techniques such as think-aloud protocols, stimulated recall, interview, diary and questionnaire. Apart from verbal reports, other procedures have been used as well, among them note-taking, tests, reaction time measurements, and, recently, eye-tracking. It is important to remember, as noted by Rebuschat (2013: 596), that while all of these techniques are used to investigate consciousness and related concepts, some of them assess "the conscious or unconscious status of the acquired knowledge," while others are suited to exploring consciousness or its lack from a process-orientated perspective, that is, at the time of encoding information. The scope of both types of elicitation will be addressed in the following overview of techniques. The section will be concluded with a justification for the use of hybrid procedures in consciousness research.

4.2.1. Concurrent verbal report: Think-aloud protocol

Think-aloud protocol (TAP) belongs to the group of verbal report research methods which are, as was explained in the previous section, part of another collective term, 'introspective methods.'[2] Van Someren, Barnard

[2] Although some researchers treat the terms 'think-aloud protocol' and 'verbal report' as synonymous and use them interchangeably, in technical terms, 'verbal report' is a wider term, and it can take several different forms (think-aloud protocol, stimulated recall, interview, diary, questionnaire, and others).

and Sandberg (1994: xi) explain that "[t]he think aloud method consists of asking people to think aloud while solving a problem and analysing the resulting verbal protocols." In a basic and straightforward definition of TAPs, Kasper (1998: 358) delineates them as "oral records of thoughts, provided by subjects when thinking aloud during or immediately after completing a task." Cohen and Hosenfeld (1981: 286) describe the think-aloud procedure in the following way:

> In thinking aloud the subject just lets the thoughts flow verbally without trying to control, direct, or observe them (beyond certain instructions which an outside investigator may have given). Thus, think-aloud data are, by their very nature, unanalyzed and without abstraction.

TAP is a *concurrent* method of data elicitation, which means that it collects data online, in real time, just as they are produced. It is thus conducted while a learning task is being performed, and typically involves a learner's verbalizing their thoughts, feelings and reasoning at the same time as they are doing the learning task (Kuusela and Paul 2000).

Leow et al. (2014: 113) note that concurrent TAP as a research tool originated in the fields of psychology and classical philosophy. It is "one type of introspective data elicitation procedure used to gather data about the thought processes that learners employ while performing a task." As noted by many researchers (e.g., Calderón 2013; Leow et al. 2014), this feature makes it a particularly appropriate method for getting an insight into cognitive processes, such as consciousness, noticing, attention and awareness. Leow et al. (2014) state that concurrent methods can be applied to investigate these constructs from different angles, for example, they can generate information about the depth and type of input processing involved. This is how they justify the use of concurrent methods, which include TAP:

> The rationale for employing concurrent data elicitation procedures is underscored by an effort to gather data that can provide insights into the processes employed by L2 learners during exposure to the L2 and the concern for establishing an adequate level of internal validity, that is, whether the findings faithfully reflect what the study set out to investigate in relation to the construct under investigation (e.g. attention, awareness, etc.). (Leow et al. 2014: 112)

In this way, as is argued by Leow et al. (2014: 113), TAP seems to be an adequate way of coming to understand how learners process L2 data, especially at the early stages of processing input and intake. They note, "[s]pecifically, this procedure should be employed to elicit data on (levels of) awareness, depth of processing, cognitive effort, the role of prior knowledge, or type of processing" (Leow et al. 2014: 114).

Opinions differ, however, as to how direct a measure of cognitive processing verbal protocols provide. According to Ericsson and Simon's (1993) framework, they can be considered as a direct account of recently encoded information, stored in short-term memory and available for subsequent verbalization. Velmans (2009: 143) contends that according to the findings of modern psychology, verbal thoughts express the 'contents of consciousness.' Similarly, Tavakoli (2013) explains that the TAP procedure implies no direct inspection of the mental state, but simply reportage, concurrent verbalization of one's inner speech without any analysis or explanation. In this way, the method does not interfere with the sequence of thoughts and can be considered a valid procedure for eliciting data on one's thoughts. On the other hand, Kasper (1998) makes a reservation that verbal reports do not directly reveal thought processes; rather, they elicit data on processing available in working memory, on the basis of which inferences have to be made about the cognitive processes involved through a detailed and appropriate analysis of the gathered data.

It is important to highlight, however, that TAPs constitute just one level within the framework of verbal reporting devised by Ericsson and Simon (1993). This framework distinguishes three levels of reporting:

- Level 1, called *talk aloud*, when learners verbalize information that is already encoded verbally in short-term memory,
- Level 2, or *think-aloud*, when they need to re-encode verbally information that is no longer available in the verbal form in short-term memory, and
- Level 3, including *introspective reports*, in which learners explain and interpret their behavior and responses.

In Ericsson and Simon's (1993: 16-17) opinion, Levels 1 and 2 (concurrent reports) constitute a direct representation of learners' processing, while at Level 3, the state of cognitive processing is likely to change, as some information will have to be retrieved from long-term memory and modified in the additional process of retrieval. These fine-grained dis-

tinctions among different levels of reporting coincide with another useful distinction within the TAP method, namely between non-metalinguistic and metalinguistic reports, which are believed to elicit different kinds of information. In non-metalinguistic (non-meta-cognitive) TAPs, participants simply verbalize their thoughts, while in metalinguistic (metacognitive) TAPs, apart from verbalizing their thoughts, participants provide explanations or justifications for what they have said (Leow et al. 2014: 113).

In view of the concurrent nature of the think-aloud method, it has frequently been used in SLA research as a way of accessing data concerning the mental processing involved in L2 learning; as concluded by Calderón (2013), attention and awareness have been at the core of TAP research, and numerous studies on attention in SLA have been based on concurrent verbal reports elicited from learners. More specifically, TAPs are reported to reveal not only participants' allocation of attention to or noticing of targeted forms or structures in the input (e.g., Alanen 1995; Leow 2001), but also the roles of different levels of consciousness (e.g., Rosa and Leow 2004), a lack of consciousness (e.g., Hama and Leow 2010), different levels or depths of processing and strategies employed (e.g., Leow, Hsieh, and Moreno 2008; Morgan-Short et al. 2012; Qi and Lapkin 2001). This technique is also used to investigate the nature and effectiveness of different types of processing, that is, conceptually-driven (involved, for example, in activation of prior knowledge) versus data-driven (e.g., Leow 1998). In such studies, TAPs yield insightful data about the processes and strategies employed in processing L2 input.

Similarly, Cohen (1996) admits that TAPs are appropriately used for investigating learner *strategies in processing input* and in performing a variety of *learning tasks*, and this line of research was stimulated by the application of this methodology in studies on first language reading (e.g., Pressley and Afflerbach 1995) and writing (e.g., Smagorinsky 1994). Leow and Morgan-Short (2004) agree that the TAP technique is typically used in strategy research, but also in tasks which involve problem-solving, and it elicits more robust data than testing. Think-aloud studies have therefore been conducted to investigate the processing of L2 forms (Hosenfeld 1976), learning strategies involved in tasks completion (Vann and Abraham 1990), writing strategies used while composing essays in the L2 (Raimes 1987), processes of reading in the L1 and L2 (Kusiak 2013), lexical inferencing (Haastrup 1991), multi-lingual translation tasks

(Gabryś-Barker 2005), and other domains involving the processing perspective on L1, L2 and multilingual acquisition.

The application and usefulness of the TAP technique in SLA studies within the wide scope of areas outlined above results from its considerable advantages as a research methodology. One of its most prominent strengths lies in the fact that it is a "process tracing method," attempting to "reflect not only processed information, but also the way it is processed" (Kuusela and Paul 2000: 390). The online, concurrent nature of TAPs makes it possible to access cognitive processes while they are being experienced by the participants, and, consequently, to make inferences about the ways people use them in arriving at decisions. In this way, "concurrent protocols may elicit a great deal of 'what' content (…), couched with some 'why' and 'how'" (Kuusela and Paul 2000: 390). Kuusela and Paul (2000: 399) found that in concurrent verbalizations, their study participants tended to focus more on the decision-making process, therefore, TAP is a particularly appropriate method in studies investigating the process rather than the outcome perspective. Leow (2015a: 137) also stresses that elicitation of rich data which reveal information about the "processing and processes being measured" is a particularly important advantage of online methods. Summing up the benefits of the TA procedure in the field of SLA, he writes,

> Concurrent data have provided a wealth of data that allow us to peek a little deeper into not only the roles of constructs such as attention and awareness, but also how participants process L2 data, that is, insights into the roles of depth or levels of processing, levels of awareness, and activation of prior knowledge and potential interactions between them during processing. (Leow 2015a: 145)

Summing up, it should be stated that concurrent data elicitation methods have numerous advantages over other methods: they provide relevant empirical data to complement interpretations made in other studies which investigated consciousness-related issues without using online data, and, by providing insights into cognitive processes while the participants are processing (interacting with or being exposed to) the L2 data, they generally contribute to raising the internal validity of such studies (Leow et al. 2014: 114).

Despite the apparent benefits that the TAP method brings to investigations into thought processes, certain threats to its validity have been for-

mulated. Ericsson and Simon (1993: 169) state that the objections raised against verbal reports mainly concern two problems. One of them is that the process of providing a verbal report changes the cognitive processing in task performance. This potential problem is referred to as the *reactivity* of TAPs. The other, referred to as their *veridicality*, is connected with the fact that verbal reports might not fully reveal all the cognitive processes going on in participants' minds.

In numerous publications on the applications of TAP methodology, the issue of reactivity is quoted as a serious critique against it (Kuusela and Paul 2000; Leow 2001, 2013, 2015a; Leow and Morgan-Short 2004). This is based on the premise that the very activity of concurrent reporting influences the actual processing, and, as a result, mental processing would be different if the participants did not report. R. Ellis (2001: 37) explains that performing a task and commenting on it at the same time results in 'dual processing,' which can affect the validity of the data. The issue of reactivity is also influenced by the additional processing load that is added to the learning task by the introduction of another, 'secondary' task of verbalization (Leow 2015a: 142). Kuusela and Paul (2000: 391) agree that placing a heavy cognitive load on participants and driving their attention from the task, which may lead them to choose less demanding processing strategies and process fewer stimuli, is a clear drawback of the concurrent report technique. This question concerning whether and to what extent the activity of thinking aloud affects participants' cognitive processes, or, in other words, the reactivity issue, has attracted considerable interest from researchers recently. Most studies have found no reactivity effects (Leow and Morgan-Short 2004; Morgan-Short, Heil et al. 2012; Stafford, Bowden and Sanz 2012). Similarly, the often-cited meta-analysis on reactivity in TAP studies by Bowen (2010) presents similar conclusions, as no or very small effect sizes between silent and think-aloud groups were revealed. Leow (2015a: 142) also contends that the level of reactivity can be influenced by variables such as: the type of report (metacognitive or non-metacognitive), the language of report (L1 or L2), participants' proficiency level, and individual cognitive variables, such as working memory.

The problem of veridicality, although usually raised in relation to retrospective reports (discussed in the following section, 4.2.2.), may concern TAP methodology as well. Objections are raised as to how accurately study participants can verbalize their thoughts and in this way reveal the underlying cognitive processes. It may happen that the participants find it

too difficult to verbalize what they notice or think about, moreover, their communication skills may be not sufficiently developed, or certain emotional states may negatively influence their verbal expression (Matsumoto 1993; Nisbett and Wilson 1977). As a result, the reports may not be sufficiently veridical. A related problem concerns the social aspect of concurrent protocols; wanting to make a good impression on the researcher, participants may select what to say and how to say it more carefully, as a result of which the protocol could be more refined and thus not completely natural (Kuusela and Paul 2000: 391).

4.2.2. Retrospective verbal report and stimulated recall

In *retrospective (offline) verbal reports*, participants also verbalize their thoughts, but after the task has already been completed. Ericsson and Simon (1993: xvi) explain that the "retrieval cues in short-term memory" which remain for some time after the task performance make it possible to retrieve the mental operations, "the sequence of thoughts." This is expected to be particularly effective for reports made just after the completion of a task. Ericsson (2003: 13) adds that in such a situation concurrent and retrospective reports can yield similar kinds of data, and high levels of correspondence between online and retrospectively elicited mental data can be assumed. Ideally, if the short-term memory cues are still available, the participant will be able to recall the cognitive processes in response to a general instruction, such as "report everything you can remember about your thoughts during the last problem," without a detailed instruction on what specifically they are supposed to retrieve (Ericsson and Simon 1993: 19). On the other hand, Leow (2015a: 147) suggests that the procedure of collecting offline verbal reports can include more specific prompts, such as an instruction to verbalize a rule they have learned, to report the criteria they applied in performing the task, to recall the feelings they had during the task, etc. As further noted by Ericsson and Simon (1993: xvi), in the case of very short tasks (which last a few seconds), retrospective data can even be considered to be more accurate than concurrent data, because the problem of online verbalization disappears.

Adding to the discussion on what specific procedures offline verbal reporting comprises, Matsumoto (1993: 35) provides a more extended definition of the term 'retrospective report.' In her definition of retrospective reporting, she also includes reports produced after a longer period of

time, in the form of questionnaires, interviews, diary entries, etc. Hence, retrospective verbal reports can be elicited both in the oral (interviews) and in the written (questionnaires and diaries) mode. They can concern a specific treatment task (as is usually the case), but also learning experience in general, perceptions about learning, etc.

It needs to be acknowledged that both kinds of verbal reports, concurrent and retrospective, have their advantages and disadvantages. Researchers (Bowles 2010; Ericsson and Simon 1993; Kuusela and Paul 2000) generally seem to agree that the validity of retrospective data may be lower because participants have a tendency to mix past and present experience. Memory demands and the need to rely on long-term memory, which can make the reports incomplete and inaccurate, are the main source of problems. In the retrieval processes, other "memory structures may be accessed instead of those created by the just-finished cognitive process" (Ericsson and Simon 1993: 19). Bowles (2010) explains that it is likely that the time that has elapsed between the task and the verbalization can lead to a decay in participants' memory, negatively affecting the completeness of reports. She writes, "retrospective verbal reports may not accurately reflect participants' thought processes because they simply may not recall what they were thinking as they completed the given task" (Bowles 2010: 14). Being unable to report on their actual thought process, participants may feel impelled to rationalize and explain their behavior instead.

Addressing these issues, Ericsson and Simon (1993: xvi-xvii) provide a number of ideas about how the validity of a retrospective report can be enhanced. It is helpful to guide a participant toward recalling 'distinct thought episodes' by providing them with the opening phrase: "I first thought of ___." Another idea is to give participants a warm-up mental task, which will stimulate recall behavior. Finally, participants need to be reminded to retrieve information "only after the completion of each trial," which means that a report will be collected "on only a fraction of all trials to reaffirm the priority of the real task."

Stimulated recall is, in addition to the retrospective verbal report discussed above, another offline procedure employed to elicit participants' comments about their mental processes evoked during an oral task and administered after the task has been completed (Leow 2015a: 148). It shares a number of common characteristics with retrospective verbal reports, as it focuses on participants' recollections of what they did and why

during the task performance. As Gass and Mackey (2017: 44) explain, "stimulated recalls are used primarily in an attempt to explore learners' thought processes and/or strategies, by asking learners to reflect on their thoughts after they have carried out a pre-determined activity." However, the main difference between these two methods lies in the presence of a stimulus, or support offered to participants. In a stimulated recall session, participants, together with the researcher, are exposed to an audio or video recording of their performance of the oral task or interaction and try to recall and explain what they were thinking about, paying attention to what difficulties they struggled with, and other cognitive processes that they experienced while engaging in the interaction. If they make a reference to the target item or any specific form, this is considered to be evidence of their having noticed this form.

The main advantage of the stimulated recall procedure, according to Gass and Mackey (2017: 25), is that it elicits learners' *reflections* on and *interpretations* of their behavior, and their own perspective on a given event. Specifically, this method facilitates the isolation of "particular 'events' from the stream of consciousness," helps trace the organization of 'cognitive structures' in learners' minds, as well as the application of a number of cognitive processes and strategies in doing tasks. As such, stimulated recall has been extensively used in different research fields in SLA, such as the use of cognitive processes (attention, noticing, awareness) in doing L2 tasks, the application of L2 strategies and inferencing, processes in L2 writing and reading, the choice of vocabulary, L2 interaction, and others (Gass and Mackey 2017: 28-29).

On the other hand, the main disadvantages of this procedure, as in the case of retrospective report, are frequent problems with remembering exactly what was happening (i.e., memory decay) and, consequently, with participants' veridicality. In relation to the potential problem of veridicality, Matsumoto (1993: 46) warns that for different reasons, participants may find it difficult to express all information that they possess. Moreover, she notes, "[i]n addition to these cases in which informants know more than they can tell, there also exist cases where informants-learners tell more than they can know." Generally, the threat of a lack of veridicality is the most serious problem potentially influencing the validity of retrospective verbal report and stimulated recall studies.

According to Mackey and Gass (2005: 78), because of the limitations, there are certain crucial recommendations to consider when applying the

stimulated recall procedure. First of all, because of memory and retrieval constraints, it is absolutely necessary that it should be administered immediately after the performance of the task, or at least as soon as possible (as is the case with retrospective reports). Bowles (2010: 14) adds that if the time interval between the task performance and the reporting activity (in the form of a retrospective verbal report or a stimulated recall) is brief, the negative consequences of the delay on the quality of reporting will be minimized. This is congruent with Ericsson's (2003: 13) recommendation in relation to offline reports, suggesting that "[w]hen the time to generate the response is brief (1s to 5s), it is likely that the participants can recall their sequence of thoughts reasonably accurately." Secondly, Mackey and Gass (2005: 79) point out that participants need to be trained so that they provide only relevant information. Moreover, the provided stimulus should be strong enough to stimulate the desired recall in participants. Finally, participants should be involved in the selection of the recorded episodes in order to maintain control over their recall processes and minimize interference on the part of the researcher. As stressed by Leow (2015a: 149), the limitations of stimulated recall can be and often are tolerated by researchers, especially bearing in mind that there is no online equivalent of stimulated recall and, thus, it is the only way of getting an insight into the mental operations that participants experience while engaging in, for example, oral interaction.

4.2.3. Note-taking, underlining and questionnaire

Among other techniques for measuring attention, note-taking (Hanaoka 2007; Izumi 2002), underlining (Izumi et al. 1999; Izumi and Bigelow 2000; Uggen 2012), and questionnaires (Alanen 1995; Robinson 1995a; Mackey et al. 2002) can be listed.

The *note-taking* technique in research on consciousness consists in participants' taking notes on what they detect, notice, and pay attention to. For example, Izumi (2002) investigated the effects of noticing L2 features in enhanced input on learners' written output. While being exposed to the input, the participants were instructed to take notes of words that they considered to be relevant and useful to understand the text, and to be able to reconstruct it later. Hanaoka (2007) researched what linguistic forms learners noticed when writing a narrative composition in the L2. The writing task was accompanied with their note-taking, on a separate piece of

paper, about what they found difficult and important in performing the writing task. The following prompts were provided as examples of the kind of information that the participants were expected to give: "'I don't know how to say X in English', 'I wrote X, but I'm not sure if this is correct', 'What is the past tense of X?' and 'I'm not sure whether the picture is describing X'." In a following stage of the study, the learners were additionally given model texts written by native speakers and were instructed to compare these versions with theirs, again taking notes on the differences between these pieces of writing and theirs in terms of linguistic features (Hanaoka 2007: 463). Self-report in the form of note-taking was thus assumed to be a measure of learners' noticing. A considerable advantage of this technique is the fact that it is an online technique which yields information on what the learners attend to and on their level of familiarity with the linguistic features. On the other hand, its main disadvantage seems to be its subjectivity, resulting in learners' own decisions about what to write.

In the *underlining* technique, learners highlight words or parts of text (or even parts of individual words) that they pay attention to. In Izumi et al.'s (1999) and Izumi and Bigelow's (2000) studies, learners were instructed to underline chunks of the L2 that they considered to be relevant in the context of the input. While being exposed to the input text, they were required to "underline the word, words, or parts of words that you feel are particularly necessary for your subsequent production (or reconstruction)" (Izumi and Bigelow 2000: 250). The advantages of the underlining technique, according to the researchers, were its concurrent nature which allowed tapping the participants' online processing of the input, and its relatively unobtrusive character which made it suitable for combination with a reading task. The researchers concluded, though, that this technique, being subjective and not demanding, was not precise enough as a data elicitation tool. Another limitation of the underlining technique is the kind of information that it yields. While providing information about the parts of text that the participants pay attention to, it does not inform the researcher about the quantity and intensity of conscious processing This limitation can partially be overcome by the employment of several measures of consciousness in a single study; for example, Uggen (2012) combined underlining with stimulated verbal recall, and received more precise and rich data.

A *noticing questionnaire* was one of the techniques applied by Mackey et al. (2002) and Mackey (2006) in their studies. This tool served as an additional verification of the findings of tests and communicative tasks. Following the research procedure, the participants filled in a questionnaire about what they had noticed within the treatment tasks. In Alanen's (1995) study, a questionnaire was also used in conjunction with other techniques. After exposure to enhanced input, the participants filled in the questionnaire on whether they had noticed the enhancement and whether they had realized the reason for it. Robinson's (1995a) questionnaire aimed to investigate to what extent the participants were aware of the L2 forms in the training session. Discussing the applicability of questionnaires in research on consciousness, Mackey (2006: 426) notes that while yielding interesting data on learners' processing, they are a problematic technique in such research because they are too subjective; moreover, for different reasons, learners can fail to report what they attended to or noticed.

4.2.4. Reaction time

Jiang (2012: 2) defines reaction time research as "any empirical study in which a research question is answered through the measurement and analysis of the amount of time individuals take in responding to a stimulus or performing a task." Leow (2015a: 137) explains that reaction time measures are considered to be a traditional research technique, because they have been applied in fields outside SLA since 1800s. This technique consists in pressing a button or a key on a computer or a response box as an immediate response to a certain stimulus. The time that elapses between the stimulus and a participant's reaction is measured and interpreted (Leow 2015a; Sternberg 1996). Leow (2015a: 138) further explains that such tasks can be simpler or more complex; in simpler ones, there is only one kind of stimulus, while in complex ones, such as 'recognition reaction time experiments,' participants additionally have to recognize the proper kind of stimulus to react to, and in 'choice reaction time experiments,' they have to make a proper choice among the stimuli, e.g., lexical items or correct grammatical structures.

Jiang (2012: 6) asserts that reaction time tasks "provide on-line measures of cognitive processes because they help reveal what is going on in our minds while language processing is unfolding." As such, as concluded by Pachella (1973: 1) and Leow (2015a: 137), reaction time

has been used in cognitive psychology as a measurement of different concepts, such as: sensory coding and selective attention, retrieval of information from both short- and long-term memory, human information processing, semantic and logical representations, tasks involving naming and classification of letters and their strings, and selection and accomplishment of responses.[3] Within the area of SLA, studies based on reaction time measurements have involved investigations on attentional and awareness processes. This is understandable, because the time factor involved makes this technique particularly apt for studying mental events and cognitive processes (Jiang 2012: 7). Leow (2015a: 138) and Jiang (2012: 7) list the following strands of reaction time research in SLA: different linguistic processing points, such as differences between native- and non-native speakers' processing, the effects of different stimuli on the speed of processing, the operationalization of implicit and explicit learning, issues concerning automaticity in a second/foreign language, as well as self-paced reading for studying sentence processing.

The link between automaticity in L2 processing and reaction time seems to be self-explanatory, because numerous definitions of automatic processing highlight its fast pace. McLaughlin, Rossman and McLeod (1983: 139) state that "an automatic process occurs rapidly," and that since "most automatic processes occur with great speed, (…) they may not be available to conscious experience." The effortless, fast and largely unconscious character of automatic processing has been confirmed by other researchers as well, e.g. Segalowitz (2003), and points to reaction time measurements as appropriate for investigating the notion of automaticity in SLA. Therefore, a number of studies have sought relationships between shorter reaction times and less effortful types of learning, i.e. implicit learning (e.g., Leung and Williams 2012, 2014). Alarcón (2009) measured the speed of processing of a certain syntactic feature, namely gender agreement in Spanish, by native and non-native speakers. In these studies, faster reaction times were interpreted as a sign of automatic processing, which requires less conscious effort on the part of the learner.

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[3] Sternberg (1996: 478) recalls reaction time studies conducted by the psychologist Arthur Jensen in the 1970 and 1980s to measure IQ levels, based on a hypothesis that more intelligent participants would press buttons at a faster rate. Reaction time letter-matching tasks were also carried out to explore levels of verbal intelligence, for example, by Posner and Mitchell (1967, after Sternberg 1996: 479).

4.2.5. Eye tracking

Leow et al. (2014: 116) explain that the technique of *tracking eye movements* was first applied in research on reading, and the first records of its use were made at the end of the 19th century by Javal (1879), who visually observed the movements of eyes in order to investigate the process of reading. Initial findings of this kind of research indicated that more efficient readers' oculo-motor efficiency was greater than less efficient readers'. Taylor (1965, after Leow et al. 2014: 116) was the first to describe a relation between "between the oculo-motor activity and the central processes involved in reading," and this premise has been the basis of eye-tracking research till today. The fact that eye-tracking gives an account of 'natural' reading processes is still highlighted as an advantage of this method (Herschensohn and Young-Scholten 2013: 713).

Godfroid (2013: 234) defines eye-tracking as "the online registration of language users' eye movements, (…) a research methodology that is used to examine visual attention and other cognitive processes in a variety of areas, including scene perception, visual search, and language processing." Two basic aspects of eye behavior are of special interest to researchers: eye *fixations* and eye *movements*, the so-called 'saccades' (Godfroid 2013; Herschensohn and Young-Scholten 2013; Roberts and Siyanova-Chanturia 2013). Fixations indicate where a person looks and for how long the gaze is maintained, while saccades give information about directions of eye movements. In eye-tracking research, time measurements of different kinds provide the most relevant information. Godfroid (2013: 234-235) and Herschensohn and Young-Scholten (2013: 714) clarify that the duration of eye fixations at certain 'interest areas' corresponding to linguistic information (words, phrases, etc.) is an indication of what a participant is focusing on. Among the different time measurements, it is important to distinguish 'first fixation' or 'first pass,' which is the first eye fixation in a given interest area (from left to right in the case of English), and 'gaze duration' (or 'total reading time'), which is a sum of all fixations in a given interest area. Other time measurements include the length of saccades, the moment of leaving the interest area, and regressions (returning to an interest area). Close observations of eye movements and their durations are assumed to point to processes underlying processing input.

Within SLA research, apart from investigating reading comprehension, eye-tracking methodology has been extensively employed in studies on attentional processes. This is explained by Leow et al. (2014: 116) in the following manner:

> The main assumption underlying this attentional strand of ELT research is that overt attention (as manifested by the exact position of the eyes) and covert attention (i.e. mental focus) are closely connected. It has been suggested that 'noticing' behavior, operationalized as the length of fixation times at the early (e.g. first fixations) or late (e.g. total reading times) stages of the reading process, correlates with some kind of learning.

Generally speaking, according to Godfroid (2013: 234), this kind of reasoning is based on a premise that the eyes and the mind are closely linked, i.e. that there is a relationship between 'overt attention,' displayed in the movements of the eyes, and 'covert attention,' not displayed, but evoked in the mind. Therefore, this strand of research includes investigations on strategies employed in input processing, learners' noticing of novel grammatical and lexical forms in the L2, and the effects of attention on learning. Roberts and Siyanova-Chanturia (2013: 224) also discuss the usefulness of this technique in research on procedures involved in grammatical processing, and their effectiveness in using their grammatical knowledge in real-time processing of L2 input.

The main advantages of eye-tracking lie in the fact that it is an online research method, offering highly precise and unique measurements (Godfroid (2013: 235) mentions its "millisecond precision and high spatial accuracy"), unavailable through the use of other research methods. It is thus definitely valuable in tracing overt attention paid to linguistic forms and detecting any difficulties with processing the material. As such, eye-tracking can be considered to be a source of robust, rich data on attention in L2 processing (Godfroid (2013: 234; Leow et al. 2014: 116).

On the other hand, one of the potential weaknesses of the eye-tracking method is that it cannot provide information on whether any understanding or intake has taken place (e.g., whether the noticing was successful in terms of learning or not), because the number and duration of fixations provide insufficiently sensitive information for measuring any in-depth cognition (Winke 2013: 343). Although eye-tracking can provide ample data on "focal or even peripheral learner attention," inferences made on the basis of such information need to be cautious. Data elicited through

this method alone may not be sufficient for establishing comprehensive conclusions on consciousness and other cognitive processes involved in the act of learning (Leow et al. 2014: 117).

4.2.6. Grammaticality judgment test and subjective measures

When defining a grammaticality judgment test (GJT), R. Ellis (1991: 162) explains that "[a] grammaticality judgment involves the learner deciding whether a sentence is well-formed or deviant."[4] Within a typical design of a GJT, participants decide whether a sentence is grammatically correct or not, choosing on option on a binary scale (e.g. "good/bad, acceptable/unacceptable, possible/impossible"), or on a Likert scale for marking the degree of sentence grammaticality (VanPatten and Benati 2015: 124). Apart from deciding whether a sentence is correct or not, GJT takers can be asked to indicate, correct and explain errors (R. Ellis 1991: 162); moreover, they can be instructed to make preference judgments, to make the decisions under time constraints, to choose the best option (out of a few), and to decide how confident they are about their judgments (Loewen 2009: 95). These additional features influence what specific kind of knowledge participants use when performing the task.

Recapitulating the main characteristics of *explicit knowledge*, three points need to be stressed: learners' ability to evaluate the grammaticality of sentences containing the target structures, deliberation on their evaluations, which requires more time, and an ability to verbalize the rule underlying the target structure (R. Ellis 2009: 32). Although different kinds of language tests have been used in SLA research to investigate the results of explicit learning (researchers also employ gap-fill and similar focused tests for this purpose), this section will be devoted to a description of the GJT exclusively, as a construct frequently referred to as measuring implicit and explicit knowledge, and investigating distinctions between them (R. Ellis 1991, 2004, 2009, 2015b; Gutiérrez 2013;

[4] R. Ellis (1991: 162) adds, "[i]t is possible to state whether such a judgment is correct or incorrect by comparing the learner's response to that of a native speaker." As noted by Loewen (2009: 94), comparing learners' and native speakers' judgments was a common procedure in initial GJT research in SLA.

Loewen 2009).[5] Researchers (Bialystok 1979; Bowles 2011; R. Ellis 1991, 2004, 2009, 2015b; Loewen 2009) agree that while *timed GJTs* measure implicit knowledge, *untimed GJTs* constitute an apt measurement of explicit knowledge. R. Ellis (2004: 256) explains that in timed GJTs learners attend to a sentence semantically and notice its features so as to decide about its grammaticality, but they do not have enough time for reflection about what exactly is correct or incorrect, which is possible in untimed GJTs. However, caution is needed in the interpretation of test results, because timed GJTs can also evoke explicit knowledge that has been automatized (Gutiérrez 2013: 427); what is more, these two kinds of knowledge can sometimes be used "in a tandem" (R. Ellis 2015b: 431). Like time constraints, the well-formedness of the task stimuli is another issue influencing the kind of knowledge involved. Apparently, different cognitive resources can be activated in evaluating *grammatical* and *ungrammatical* items. Loewen (2009: 98) clarifies that while both kinds of sentences require processing for meaning and noticing inaccuracies, those which are ungrammatical will stimulate more reflection in order to identify the error. Although there is no consensus among researchers on this issue, R. Ellis (1991, 2009, 2015b) suggests that processing ungrammatical sentences taps learners' explicit rather than implicit knowledge. In R. Ellis's studies, the timed GJT scores correlated more strongly with the elicitation imitation test, which is a measure of implicit knowledge, and, conversely, the untimed GJT scores correlated with a metalinguistic knowledge test, which measures explicit knowledge (R. Ellis 2015b: 430).

Direct and indirect tests, of which GJT is an example, can be referred to as 'objective' measures of consciousness. However, as pointed out by Wierzchoń et al. (2012: 1142), "objective measures may be criticized for failing to capture the very central aspect of consciousness, namely subjective experience." They further argue that in light of the importance of subjective experience in evaluating conscious access, *both objective* and *subjective* measures should always be included in any study on consciousness. For this reason, tests of explicit knowledge have often been complemented with *subjective measures* of consciousness, which aim to elicit

[5] Stressing the appropriateness of GJTs for this purpose, R. Ellis (2004: 249) wrote, "[i]t is clear that the favored method of investigating L2 explicit knowledge as conscious awareness is the grammaticality judgment task."

participants' reports about how confident they are about their test performance (Dienes and Scott 2005; R. Ellis 2015b; Rebuschat 2013; Rebuschat et al. 2013). Dienes and Scott (2005: 339) explain that while it can be assumed that conscious knowledge about a structure leads to a conscious judgment, it is still possible that unconscious structural knowledge will lead to either conscious or unconscious judgment. A participant, recognizing an item as grammatical on the basis of intuition, may be unable to explain the judgment. On the other hand, if both structural and judgment knowledge are unconscious, guessing is applied. In both cases (intuition and guessing), the structural knowledge acquired during training is unconscious. As a result, "the problem is that conscious judgment knowledge leaves the conscious status of structural knowledge completely open" (Dienes and Scott 2005: 340). Therefore, subjective measures, performed in conjunction with grammaticality judgments, help reveal the status of participants' knowledge. Seth et al. (2008: 317), stressing that "[m]ost simply, subjective measures have been used to ascertain whether a person knows that they know," further discuss the way in which such measurements are applied to verify participants' awareness of their knowledge.

One way of performing subjective measures is through collecting *confidence ratings*. In this procedure, participants do a GJT and indicate, for each judgment, how confident they were in their decision by marking their rating on a scale. These scales can take different forms: they can be continuous (e.g. 50-100%) or discrete (e.g. binary); they can use numerical (e.g. below 50%, 51-59%, etc.), or verbal values (e.g. "complete guess, somewhat confident, very confident, absolutely certain") (R. Ellis 2015b: 423; Rebuschat 2013: 614). Collecting *source attributions*, that is, information about what led them to make the grammaticality judgment, is another kind of subjective measure. Here, participants indicate what their decision was based on. Dienes and Scott (2005: 340) suggest that participants mark their answers on a set of fixed options, such as: "[g]uess, intuition, pre-existing knowledge, rules, and memory." Guessing indicates no basis for the judgment, intuition indicates a minimal confidence with no ability to explain the decision, pre-existing knowledge indicates that the judgment was not based on knowledge gained in the training, the rules category implies that the knowledge of the rule was derived from the training, and memory – that the decision was made on the basis of remembering items from the training.

In analyzing confidence ratings, as explained by Seth et al. (2008: 317) and Rebuschat et al. (2013: 254), knowledge is assumed to be unconscious if participants decide that they are guessing (they mark the "guess" option), while their performance (measured as accuracy on the test) is significantly above chance. In such cases, the 'guessing criterion' is applied in evaluating their level of consciousness. Similarly, if a participant's confidence rating does not match their accuracy scores on a test, the 'zero correlation criterion' is applied to evaluate their knowledge as unconscious. On the other hand, a relationship between confidence ratings and accuracy scores is assumed to indicate conscious knowledge.

R. Ellis (2015b: 424) sums up the main steps in carrying out research with the use of a GJT with subjective measures. After performing an exposure task, the participants do a GJT, at the same time judging their confidence levels and source attributions for each item in the GJT. The subsequent analysis involves calculating the accuracy score on the GJT and the confidence scores, and establishing whether both are on the above chance level. Then, the calculation of mean confidence in correct and incorrect judgments on GJT is a basis for conducting correlational analysis between judgment accuracy and confidence. No correlation indicates unconscious judgment knowledge, while higher levels of both accuracy and confidence can be interpreted as indicating conscious knowledge.[6]

Rebuschat (2013: 610) acknowledges that response bias, denoting the application of their own personal criteria for reporting confidence and source of knowledge by participants, is the main limitation of subjective measures. Some may report guessing while they are simply not quite sure, while others might claim full confidence if they base their judgments on mere intuition. Despite this drawback, however, Dienes and Scott (2005) and Rebuschat et al. (2013) recommend the use of subjective measures as a useful addition to other measures of implicit and explicit knowledge.

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[6] Similarly, Wierzchoń et al. (2012: 1143) also point out that "a correlation between confidence and task performance accuracy suggests that judgment knowledge is in fact associated with structural knowledge."

4.2.7. Hybrid methodological designs

Hybrid designs employ a *combination* of different kinds of elicitation procedures, e.g. involving both qualitative and quantitative analyses to *triangulate* the data collected in order to address effectively the constructs under investigation. Such studies in the area of SLA were initiated in the late 1980s and have continued until now. Alanen (1995) was one of the first scholars to use such a design. He employed a combination of online concurrent TAPs, a GJT, and a rule statement test to compare explicit information versus implicit textual enhancement. In a conclusion to the discussion of the study findings, providing a justification of his procedure, Alanen (1995: 296) wrote, "[i]t may be that the process of second language acquisition is so complex that research that aims at gaining an understanding of even the smallest part of it should be carried out by using various methods and instruments to measure the learners' progress."

Naturally, the application of a single data elicitation method, especially in researching complex concepts, such as consciousness, increases the risk of obtaining incomplete data and thus of lowering their validity and reliability. Matsumoto (1993: 46), in a review of methodological considerations in conducting and analyzing verbal report data, recommends the employment of "data triangulation (i.e., collecting learners' mentalistic data from multiple sources) and methodological triangulation (i.e., combining introspective verbal-report methods with extrospective techniques)" as a way of enhancing the accuracy and validity of the obtained data about cognitive processes. These issues have also been more recently discussed by other scholars. For example, Rebuschat et al. (2015: 303), in a review of selected studies investigating implicit and explicit learning and knowledge (J. N. Williams 2005; Hama and Leow 2010), point to limitations of concurrent and retrospective verbal reports as not "sensitive enough to capture all of this relevant conscious knowledge." They argue that the presence of verbalization does not necessarily show awareness at the stage of learning or resulting explicit knowledge, and similarly, its absence need not indicate a lack of awareness or implicit knowledge. This is connected with the issue of veridicality in verbal reports, discussed in section 4.2.2. Rebuschat et al. (2015: 304, 331) thus suggest that triangulation of three data elicitation methods, namely concurrent reports, retrospective reports, and subjective measures, would result in obtaining more complete and robust data on awareness. In the same vein, as indicated by

R. Ellis (2004: 268), TAPs are best used in conjunction with other measures, such as tests, because only then do they fully tap into learners' explicit knowledge. Similarly, arguing that different measures have been applied in studies in order to operationalize complex notions such as 'noticing' and 'awareness,' Philp (2013: 466) calls for combining numerous data elicitation methods within one study in order to enhance the reliability of its results. She suggests that both concurrent methods, such as TA and eye tracking, and retrospective ones, such as stimulated recall, diary, questionnaires and underlining, should be combined in a single study. Leeser (2014: 245), acknowledging that in SLA research on attention and awareness, verbal protocol data are often complemented and compared with those elicited through other measures, such as tests (pre- and post-tests), argues that the implementation of psychometric methods would help overcome most limitations (reactivity and lack of veridicality) connected with using verbal reports as the only sources on data. These methods can also provide other information about the cognitive processing performed by the participants, which is not possible with the use of verbal reports and tests alone. Along similar lines, in order to illustrate the benefits of hybrid research designs, Gass and Mackey (2017) provide an overview of recent studies which employed the stimulated recall method with other methods of data collection in order to triangulate data and to provide an additional source of data to make the overall findings more comprehensive. As noted by Gass and Mackey (2017: 101-102), stimulated recall interviews were used in conjunction with eye-tracking and lexical tests by Godfroid and Schmidtke (2013) to investigate receptive vocabulary learning processes. Moreover, Gass and Mackey (2017) suggest ideas on how stimulated recall data could have potentially been useful in certain studies to complement the elicited data, although this methodology was not used. King and Mackey (2016: 211) state that the 'layered perspective' adopted by SLA research, characterized by the use of multiple methods, often borrowed from different disciplines, has long been characteristic of SLA research.[7] They sum up this issue in this way:

[7] To illustrate this point, they discuss the evolving paradigm of research on awareness and attention, stimulated by Schmidt's Noticing Hypothesis (1990) and initiated by Schmidt and Frota's (1986) diary study. Since then, this line of research has developed to include a number of methodological options.

> Various aspects of noticing, attention, and awareness are now debated, operationalized, and tested in different configurations, in studies utilizing methodologies and techniques from a range of disciplinary perspectives, most notably drawing from complementary research in psychology and neuroscience, including, for example, brain scanning studies, eye tracking research, reaction time, and confidence ratings. In addition to these experimental and quantitative approaches, more introspective, qualitatively oriented methods such as think-alouds and stimulated recalls have also been productively utilized. (King and Mackey 2016: 211)

Discussing this multi-method orientation in SLA, King and Mackey (2016: 212) stress that it is especially prominent now, with the increasing scope of investigations and the research opportunities enhanced by technological advancement, globalization, and collaboration.

In the following part of this section, a number of studies which have examined consciousness-related processing and processes in L2 learning with the use of a combination of different research methods will be reviewed. The aim of presenting this compilation of representative studies (Table 12) is to illustrate the methodological setups employed in research on consciousness in instructed learning of L2 grammar, i.e., what specifically they investigated (i.e. their main aims), the elicitation procedures used, some characteristics (the size, the L1 background) of the samples, and the duration of the studies. Only studies in which more than one data elicitation method have been used are included here.

Table 12. Methodological designs in selected studies on the role of consciousness-related concepts in learning L2 grammar.

Researcher(s)	Aim	Data elicitation procedure	Participants	Duration
Schmidt and Frota (1986)	To explore the effects of explicit and implicit learning on L2 development	Learning diaries, Recordings of conversations in the L2	One adult L1 English l earner of L2 Portuguese	5 months
Doughty (1991)	To investigate the effectiveness of explicit and implicit instruction on L2 grammar development	Pre- and post-test GJT	20 adult learners of L2 English from different L1 backgrounds	10 days

Egi (2004)	To explore the effects of measurement on noticing	Immediate retrospective verbal report, Stimulated recall, Pre- and post-test	23 adult learners of L2 Japanese from different L1 backgrounds	45-60 mins on two consecutive days
Lee (2007)	To investigate the effects of input enhancement on grammar acquisition and meaning compre-hension	Reading comprehension test, Free recall (written)	259 L1 Korean high-school learners of L2 English	Four 50-minute classes over two weeks
Bao, Egi, Han (2011)	To detect relationships between recast type and learners' noticing	Uptake measures (tests), Stimulated recall	25 adult learners of L2 English from different L1 backgrounds	100 mins videotaping, 10 mins interviews
Rebuschat and Williams (2012)	To determine whether adult learners can acquire L2 syntax implicitly	GJT, Confidence ratings, Retrospective debriefing questionnaire	35 L1 adult English speakers	About 60 mins
Godfroid and Uggen (2013)	To investigate whether more attention leads to enhanced learning of grammatical features	Eye-tracking, Pre- and post-test	40 adult L1 English learners of L2 German	n.d.
Rebuschat et al. (2013)	To investigate whether incidental learning through exposure leads to the acquisition of form-meaning mappings in a semi-artificial language	Tests, Retrospective verbal report, Confidence ratings and source attributions	30 L1 English adults	n.d.
Winke (2013)	To investigate whether and how input enhancement affects learning grammar and text comprehension	Eye-tracking, Pre- and post-test, Retrospective verbal report: free recall	55 adult learners of English from different L1 backgrounds	n.d.

Leung and Williams (2014)	To explore the effects of prior linguistic knowledge on implicit language learning	Reaction time, Questionnaire	30 adult speakers of English and 27 speakers of Chinese	45 mins
Andringa and Curcic (2015)	To investigate the effects of explicit L2 knowledge on the initial stage of L2 acquisition.	Eye-tracking, Oral GJT, Debriefing interview	52 adult L1 Dutch learners exposed to a structure in Spanish	35 mins + interview
Loewen and Inceoglu (2016)	To investigate whether input enhancement affects noticing and learning grammatical forms	Eye-tracking, Test, Retrospective verbal report	30 L1 English learners of L2 Spanish, university students	30-45 mins
Rogers, Révész and Rebuschat (2016)	To test the effects of incidental exposure to L2 inflectional morphology on the development of implicit and explicit knowledge	Timed GJT, Confidence ratings and source attributions, Retrospective verbal report	42 L1 English adults exposed to semiartificial samples based on Czech	Exposure 25 mins + testing (n.d.)
Indrarathne and Kormos (2017)	To explore attentional processing of a target syntactic construction in written L2 input in different input conditions	Eye-tracking, Pre- and post-tests	100 adult L1 Sinhala speakers, learning L2 English; 45 of them in the eye-tracking condition	n.d.

All of the studies whose methodological design details are summarized in Table 12 explored concepts in relation to the role of consciousness, attention and awareness in learning L2 grammar, although the specific scope of each of the studies was different. Some of them aimed to investigate the effects of different variables, such as the age of the learners (Rebuschat and J. N. Williams 2012), previous knowledge (Leung and J. N. Williams 2014) and type of exposure (Rogers, Révész and Rebuschat 2016) on the resulting implicit or explicit knowledge. Others (Schmidt and Frota

1986; Doughty 1991; Andringa and Curcic 2015) explored the impact of implicit or explicit learning, instruction or knowledge on the subsequent development of knowledge of L2 structures. Egi (2004), Bao, Egi and Han (2011) and Loewen and Inceoglu (2016) investigated the effects of some independent variables on learners' noticing of forms, and Godfroid and Uggen (2013) were interested in the effects of enhanced attention to L2 features on their acquisition. Input and input enhancement were the variables in some of the studies (Lee 2007; Winke 2013; Indrarathne and Kormos 2017; Loewen and Inceoglu 2016).

As is evident in the selection of the research methods in these studies, the different cognitive concepts and processes were operationalized differently by the researchers. As was stated before, all of them made use of at least two data elicitation methods. Retrospective verbal reports, including debriefing questionnaires, interviews, and stimulated or free recalls, were the most frequently used methods in this collection of studies, as they were applied in 10 of them (out of the total of 14). Tests, including GJT, were employed in eight of the studies, and eye-tracking procedures – in five of them (Godfroid and Uggen 2013; Winke 2013; Andriga and Curcic 2015; Indrarathne and Kormos 2017; Loewen and Inceoglu 2016). Two of the studies complemented GJT results with subjective measures (Rebuschat et al. 2013 and Rogers, Révész and Rebuschat 2016); one employed a learning diary (Schmidt and Frota 1986), and one made use of reaction time measurements (Leung and J. N. Williams 2014). As can be seen from the selection of the research methods, all of the studies, perhaps with the exception of Doughty (1991), assumed the process rather than product orientation, as methods such as eye-tracking and verbal reports elicit information about the cognitive processes involved in the performance of a task, with test measures providing data about the effects of the processes. A combination of eye-tracking and verbal reports with GJTs and other tests was common in these studies.

The sample sizes in these studies varied considerably and ranged from one (Schmidt and Frota 1986) to 259 (Lee 2007), with most of the remaining studies being conducted on between 20 and 40 participants. With the exception of just one study conducted on adolescent learners (Lee 2007), all of them had adult participants. In the treatment sessions in most of the studies, the participants were exposed to or learned grammatical structures in different L2s: English, Japanese, German, Spanish, and three studies (Rebuschat and Williams 2012; Rebuschat et al. 2013 and

Rogers, Révész and Rebuschat 2016) made use of semi-artificial language items as treatment material.

The duration of the studies was relatively short, apart from the two earlier studies, in which the longer research period was a consequence of the methodology applied. In Schmidt and Frota (1986), the participant (Schmidt himself) kept a daily diary over his 5-month stay in Portugal. In Doughty's (1991) study, 10 days elapsed between the pre- and post-test, during which the participants underwent treatment on a daily basis. As can be seen in Table 12, all the remaining research procedures were completed within 30-110 minutes, within single sessions. Interestingly, in four out of the fourteen studies reviewed here, no details about the duration of the treatment were provided.

The brief review of 14 studies illustrates the application of the research methods typically used in SLA investigations on consciousness-related processes in learning L2 grammar. As noted by Leow (2015a), only by observing high levels of methodological consistency in the design of an empirical investigation and in the analysis of its outcomes can sufficient levels of validity and reliability be guaranteed. The following section will shed light on the methodological considerations in conducting TAP-based research, which is a central issue within the scope of the present work.

Summing up the section on the data-elicitation methods for researching consciousness in L2 learning, it can be stated that:

- The concurrent nature of the TAP method makes it particularly appropriate for studies on consciousness, because not only does it yield information about the mental processes used by the participants, but it also measures the levels of processing and allows inferences to be made about how the processes are used in performing a task.
- Other types of verbal reporting, such as retrospective report and stimulated recall, as well as diaries, questionnaires and interviews, are also useful in gaining insights into mental processing.
- Apart from verbal reports, reaction time, eye tracking, and tests are often used in L2 research on consciousness.
- Tests, such as GJT, give information about the knowledge representation in learners' minds, and subjective measures of participants' judgments are a useful complementation of test results.

- Hybrid methodological designs, offering a combination of different kinds of elicitation procedures, allow for a more comprehensive measurement of consciousness.

4.3. Methodological considerations in conducting think-aloud studies

Because TAP was the main research tool and the primary source of data used in the study conducted for the purpose of this work, and because the TAP procedure consists of multiple stages and requires attending to many different factors, this section will be devoted to a description of relevant methodological considerations in following the TAP research procedure. Ericsson and Simon (1993: 5) make it clear that the raw data elicited through the think-aloud method need to be analyzed with great caution, following certain steps and observing strict procedures.

4.3.1. Before and while collecting a think-aloud protocol

Leow et al. (2014: 115) make the point that before collecting TA protocols, a researcher should carefully consider the characteristics of both the research *sample* and the *tasks* to be used. Most studies reported in the literature have been conducted on adults, usually university or college students. However, other kinds of participants have also been selected, e.g., high school students and children (e.g., Gu 2014). Cohen and Hosenheld (1981: 291), discussing the sampling procedure for research on mentalistic states, make the point that the participants should be at least ten years old, with no upper age limits. The reason why educated adults have usually been participants in TA studies is connected with their assumed well-developed verbalization skills, as this seems to be an important factor influencing the outcomes of the study. Therefore, researchers (Ericsson and Simon 1993; Olson, Duffy and Mack 1984) stress that any group of participants should undergo brief training in verbalization. Such a training involves a description of the procedure and their role in it, and it also predisposes them affectively to deal with the difficulty connected with verbalizing one's thoughts.

Tasks should be carefully selected on the basis of their compatibility with the procedure of thinking aloud. According to Kasper (1998) and Bowles (2010: 117), oral tasks are not appropriate for eliciting concurrent TAPs, and they seem to be better suited to retrospective stimulated re-

calls. Therefore, the TA methodology is best served by written tasks of different kinds, among them writing a summary, an essay, or doing a written test. The choice of task is a crucial decision, because the task requirements influence how much thinking aloud is stimulated. Leow et al. (2014) suggest that *problem-solving* activities (e.g. a crossword or a maze) are likely to elicit particularly high levels (even up to 100%) thinking aloud on the part of the participants, while reading comprehension is likely to be less stimulating. Therefore, Leow et al. (2014: 115) recommend that TAPs are most appropriate in studies that "address how learners process L2 data. Specifically, this procedure should be employed to elicit data on (levels of) awareness, depth of processing, cognitive effort, the role of prior knowledge, or type of processing." As has been suggested above (in section 4.2.1.), the TA method is believed to elicit information about explicit learning processes and explicit knowledge, hence the selection of tasks needs to take this into account. Following N. Ellis' (2005) guidelines, Bowles (2010: 118) makes the claim that untimed GJTs, metalinguistic tasks and other procedures designed to tap explicit processing can be used for stimulating TAPs, while timed GJTs and other measures of implicit knowledge are not suitable for this method.

It is generally recommended (e.g., Gu 2014: 75) that hypotheses and clear *coding criteria* and procedures should be determined prior to collecting the verbal reports. This can be done on the basis of the established theory and previous research findings. However, if a study is predominantly exploratory and little or no previous research on the given issue has been conducted, the criteria for coding the data are likely to be revealed during the analysis of the research material, along with the guidelines of grounded theory (Glaser and Strauss 1967), based on discovering the emerging themes in the actual elicited data.

Bowles (2010: 113) stresses that *consent* to be audio-recorded should be obtained from the participants, accompanied by statement of anonymity and confidentiality of the obtained data. This needs to be followed by an implementation of a formal protocol consisting of three steps before the actual think-aloud procedure starts. This formal protocol should thus:

> (1) reiterate the reason the participants are being asked to think aloud, (2) provide instructions about how they should think aloud, and (3) include a warm-up task during which participants practice thinking aloud and have time to ask the researchers any questions about the process before beginning the operational study. (Bowles 2010: 114)

To sum up, it is important to clarify the main reasons for the participants' thinking aloud, perhaps with an optional general explanation of the main orientation of the research and the place of the think-aloud in its design. However, Bowles (2010: 114-115) stresses that the explanation should be very brief and general enough not to display too detailed information about the study aims.

Next, it is vital to give specific *instructions* about what the participants are expected to do. This includes a clarification of what 'thinking aloud' means, preferably specifying which language the participants are expected to use (the L1 or the L2) in their verbalizations. According to Bowles (2010: 115), it is better to specify the required language of thinking aloud in order to avoid unnecessary variability in the protocols in a situation if different participants decide to use different languages, although there has been little empirical investigation into the effects of thinking aloud in the L1 and in the L2. Freedom to choose the language of verbalization, however, has been typical in think-aloud-based studies. Finally, the instruction should provide a description of how detailed the verbalizations should be, and whether they should be metalinguistic or non-metalinguistic. While such terminology will not be included in the instruction, it should be clear for the participants whether they are expected to justify their decisions or not. It is also desirable to *pilot* the instruction and other procedures on a small sample in order to detect any possible problems.

The aim of the *warm-up task* is to give the participants hands-on experience with thinking aloud, to accustom them to the procedure, and to make sure that they understand the expectations (Leow et al. 2014: 115). Usually, as advocated by Ericsson and Simon (1993: 240-241), a warm-up task consists of an arithmetic calculation that the participants perform while thinking aloud, verbalizing the reasoning applied. At the end of the warm-up stage, the participants should have a chance to ask questions to clarify any doubts concerning the requirements of the study.

Ericsson and Simon (1993: 5) caution that the protocols obtained through concurrent verbal reports should be *audio-recorded*, and the recording should contain all auditory material that took place during the TA session. Bowles (2010: 120) adds that depending on the aims of the study and its theoretical background, sometimes it is advocated to create a video recorded TAP which includes the participants' body language and other non-verbal information. During the TA stage, it is advised for the re-

searcher to *remind* the participants of the task and prompt them to keep talking if they make a longer pause. This allows TAPs to be complete and contributes to the validity of the data (Bowles 2010: 120; Leow et al. 2014: 115). Ericsson and Simon (1993: 37) state that the length of the silence in verbalization which calls for a reminder is, depending on the study, between 15 seconds and one minute, and usually, the phrases "keep talking" or "what are you thinking about?" are provided by the researcher. They warn, however, that the reminder should not affect the participant's mental processing, for example, by eliciting an explanation of the processing rather than its plain verbalization. Concerning the mode of recording the verbalizations, interestingly, Michońska-Stadnik (2018) made use of written instead of oral reports in her study on mental processing in a translation task. She observed that the application of the written medium enhanced the confidence of the participants, and did not negatively influence the thinking process.

4.3.2. After collecting a think-aloud protocol

Transcription of the recorded auditory material is a vital procedure in data analysis. Kasper (1998: 353) and van Someren, Barnard and Sandberg (1994: 45, 120) stress that since verbal protocols are oral data, transcribing them is a crucial first step in their analysis and interpretation, and this suggestion underscores all studies involving spoken discourse. Saldaña (2014: 582), in his account of qualitative data analysis procedures, notes that the process of transcribing a recording already invokes analytic thinking in the researcher, as it stimulates first impressions, making connections among pieces of data, and prepares the researcher's mind for further steps in the analysis of the data. According to Ericsson and Simon (1993: 5), producing a written transcript can be largely facilitated by an initial 'preprocessing' of the auditory material, in which selection and elimination of some of the redundant, repeated information takes place. On the other hand, van Someren, Barnard and Sandberg (1994) argue that the transcription should be as accurate as possible. This means that apart from the participant's utterances and the researcher's prompts, even inaudible parts, pauses, unexpected interruptions, etc., should be included. According to Kasper (1998: 359), such features of spoken production can convey valid information about mental processing. For example, false starts and reformulations can indicate a change of plans, fillers and pauses can sig-

nal difficulties in processing, and meta-procedural comments and paralinguistic signals can point to metacognitive activity involved in processing the task. Such signals provide information about cognitive processing, but also about affective or attitudinal aspects of processing, often equally important in the accurate interpretation of the data. How detailed the transcription is, however, depends on the aims of the study, and considerable variability among different studies in this respect has been observed (Bowles 2010: 125).

Next, the transcribed protocols need to be *segmented* in order to become, in van Someren, Barnard and Sandberg's (1994: 119) words, 'raw data' for further analysis. Breaking down the obtained material into segments is a necessary step, allowing the researcher to investigate its microstructure (Kuusela and Paul 2000: 395). Ericsson and Simon (1993: 5, 205) agree that such a procedure increases the reliability of the data interpretation, especially in studies in which the frequencies of occurrence of particular strategies are analyzed. They suggest that signals such as "temporal information, repetitions, and stress" as well as the syntactic structure of phrases and sentences are usually traced in order to "segment and parse the verbal stream." As a result, segments are usually equivalent with phrases (which in speech are marked by pause boundaries). However, what is considered a 'segment' is a subjective issue and depends on the researcher's choice.

The segments of text subsequently undergo the process of *coding*, in which their meanings are discovered and assigned to the data. McDonough and McDonough (1997: 198) note that in numerous studies which use TA data, the codes are referred to as 'strategies,' since they denote the mental processes employed by the participants. Ericsson and Simon (1993: 202) explain that the 'processing strategies' encoded in the verbal reports reflect the 'methods of attack' employed by the participants in solving the problems they face in the tasks. For Saldaña (2014: 584), coding qualitative data is a vital procedure in making sense of the vast amount of gathered information, because the codes assigned to portions of text "function as a way of patterning, classifying, and later reorganizing them into emergent categories for further analysis." The codes can be assigned to any portion of data, from individual words or phrases to full sentences or longer parts of discourse. A practical tip given by Saldaña (2014: 585) concerns an introduction of a pre-coding phase in which the transcript is divided into shorter, more manageable units, or 'stanzas.' As a result, the text is easier to read, process and code.

The following step involves organizing the coded segments according to a certain *coding scheme*. The coding scheme adapted for a given study should be grounded in the context of a certain theory or model of cognitive processing, and not represent just a list of random strategies (Kasper 1998: 359). An appropriately selected underlying scheme will make it easier to analyze and interpret the protocols, and draw inferences about the cognitive processes involved in the think-aloud activity. As pointed out by Kasper (1998) and Gu (2014), researchers can either use an existing coding scheme elaborated by other researchers[8], or develop their own, adjusted to the aims of a given study. In such a case, an initial scheme, based on existing theories, can be used as a helpful foundation for developing a specific design based on the data encountered in the protocol. The coding categories are likely to be further adjusted in accordance with the ongoing process of coding (Kasper 1998: 360). Gu (2014: 75) reports combining an existing, empirically-based coding scheme with its flexible manipulations on the basis of the actual data. For this reason, as acknowledged by Saldaña (2014: 586), it is natural that different codes can be developed in the analysis of the same qualitative data by different researchers, "depending on their lenses and filters" which reflect the aims and scope of the study, as well as the theoretical background the study is anchored in.

Saldaña (2014: 587) further suggests that the codes should subsequently be *categorized* into larger groups. Creating categories of codes serves to detect logical links among particular codes, with the possibility of clustering them together into more comprehensive, broader units. In this process, the 'reorganizing' and 'reordering' of information take place, as a result of which specific features of both smaller and larger elements as well as their mutual relationships will be more easily discerned. Assigning codes to units, developing coding schemes, and devising categories for groups of codes are 'interpretive' processes, which can involve different ways of sorting and grouping the data. At the end of the categorizing process, *labels* are given to the groups of items, and each category comprises several specific codes linked in a meaningful (e.g. thematic) way. On the other hand, Gu (2014) notes that during the process of estab-

[8] Two examples of such coding schemes are Pressley and Afflerbach's (1995) scheme for think-aloud research on L1 reading comprehension, and Bracewell and Breuleux's (1994) scheme for studies on L1 writing.

lishing codes and categories, further specification is justified, and broader units are often broken down into more specific ones. For example, in research on applying strategies by learners,

> metacognitive strategies can be broken down into strategies for planning, for monitoring, and for evaluating. Evaluating strategies can be further broken down into comprehension evaluation strategies and problem identification strategies; and comprehension evaluation strategies can in turn be subcategorized into, among other things, checking interpretation against prior knowledge and checking interpretation against an internal measure of completeness and accuracy. Further subcategorisation is still possible. (Gu 2014: 79)

The level of specificity of the categories and strategies included in the final version of the coding scheme depends on a given study, its aims and orientation. Both a general set of categories and a very detailed list of specific codes or strategies have their advantages and possible drawbacks.

Van Someren, Barnard and Sandberg (1994: 122) make the point that if a protocol is comprehensive and covers any auditory incident that took place during the TA session, 'special coding categories' will also be present and should be included in the overall coding system. The 'special categories' include, for example,

> (a) Talking about not-task related issues ('Oh, I must not forget to call my friend').
> (b) Evaluation of the task or task-situation at a meta-level ('It is tiring to talk so much', 'I hate these kinds of problems').
> (c) Comments on oneself ('I am thirsty', 'I am not comfortable').
> (d) Silent periods. At times people will briefly stop verbalizing. After some time they may continue or they may be prompted to continue. It may be relevant to assign a code to relatively long pauses.
> (e) Actions. The subject performs an action (for example, writes a note or manipulates a device).

Van Someren, Barnard and Sandberg (1994: 122) explain that it can be important to include these categories in the overall coding scheme, because, while in some cases they may appear to be completely irrelevant, in others they may indicate the existence of important variables, such as, for example, cognitive overload or becoming tired of performing the task.

As noted by Gu (2014: 76), coding requires high levels of "agency, thoughtfulness and reflexivity" from the researcher, and it is, in principle,

a dynamic and subjective process. This is also confirmed by other authors (e.g., Bong 2002; Humble 2012). Because it is a strenuous undertaking and the assignment of codes to units requires, naturally, highly subjective decisions, it is common practice to conduct *inter-rater reliability*, established through evaluating the way of coding categories performed by two independent raters (usually the researcher and another rater), in the process of coding protocols. Usually, the co-rater evaluates a subset (e.g. 10-20%) of the transcripts. Discussions between the two raters, which will inevitably take place in the process of evaluating the ways of coding, will contribute to a better-developed coding scheme and increased reliability of the final data ready for subsequent inference procedures (Kasper 1998; Bowles 2010). Specifying the method of conducting the inter-rater agreement, Bowles (2010: 136) discusses two main options. One of them ("[t]he least complex and most widely used") consists in calculating a percentage of the instances on which there was agreement between the two raters. The other one involves calculating Cohen's kappa, whose value over 0.8 indicates a high level of inter-rater reliability. It is important to add that in some cases, intra-rater reliability of data coding, established by evaluating the data by the same rater a number of times over a period of time, is applied in think-aloud studies (e.g. Kusiak 2013). A combination of intra- and inter-rater reliability of coding is also a recommended practice, and has been used in studies (e.g., Cumming 1990).

As explained by Saldaña (2014: 588), the coded and categorized material then undergoes *analyses* proper, that is, thinking in a manner that allows the researcher to understand the causes of certain findings, to sum up the results of the research, and to draw legitimate conclusions. The author further asserts that because, unlike quantitative research, there are no universally followed analysis procedures for qualitative data, the following guidelines are useful in any analysis of qualitative empirical data:

- to base your conclusions primarily on the participants' experiences, not just your own
- not to take the obvious for granted, as sometimes the expected won't always happen. Your hunches can be quite right and, at other times, quite wrong
- to examine the evidence carefully and make reasonable inferences
- to logically yet imaginatively think about what is going on and how it all comes together.

According to Matsumoto (1993: 45), verbal report data allow the researcher to conduct different kinds of analyses. Following Grotjahn's (1987) ideas, these data can be interpreted within different paradigms: (1) exploratory-interpretive (involving pure qualitative exploratory analysis), (2) exploratory-qualitative-statistical (involving statistical analysis on qualitative data), (3) exploratory-quantitative-statistical (involving statistical analysis on quantified data), and (4) exploratory-quantitative-interpretative (based on quantitative data and their interpretation). Leow et al. (2014: 115) agree that adequate coding allows the researcher to perform both qualitative and quantitative analyses on TA data, as both kinds of analyses provide different kinds of information: the qualitative perspective allows the researcher to get a deeper interpretative insight into the nature of participants' processing stimulated by the task, and quantitative investigations make it possible to arrive at more "firm and generalizable conclusions." Gu (2014: 76), suggesting a similar approach, explains that while qualitative analyses of the strategies reveal the *meaning* of the transcripts, quantitative investigations make it possible to discover *patterns* in the data and compare the data obtained from different participants. Therefore, quantitative analyses often involve measuring the *frequencies* of the occurrence of certain strategies or other mental processes reflected in the protocols. For example, Seng and Hashim (2006) calculated the frequencies of the use of L1-based strategies in L2 reading, and presented these data in the form of percentages for each strategy use per participant and per the whole sample. Next, they compared the particular strategies in terms of their frequency.

Leow et al. (2014: 115), however, warn that focusing on just the frequency of using certain kinds of processing can lead to a neglect of the dynamic interplay between these categories or the existence of other factors contributing to the quality of mental processes. In light of this, Kasper (1998: 361) suggests that quantitative data obtained from TAP analyses should be complemented with qualitative data in the form of carefully selected examples of participants' verbalizations which illustrate the phenomena under study. Excerpts from protocols can also be presented in order to show cases which appeared to be problematic with the application of the coding scheme or which serve as counterevidence to other data. This procedure will "allow readers themselves to check how the categories were applied" and "does justice to the unique nature of think-aloud data." These arguments support the claim that various ways of analyzing TAP data are possible and recommended.

4.3.3. An overview of selected think-aloud studies on instructed L2 grammar acquisition

In this subsection, ten selected studies will be reviewed with regard to the methodological designs they employed (summarized in Table 13). To this end, the main aims of the studies, the stimulus (task, input, etc.) used to evoke the thinking aloud, and some information about the participants (sample size, language learned) will be included in this review. Although the studies made use of hybrid methodological setups, using TAP in conjunction with other methods, the focus in the present discussion will be exclusively on the *think-aloud procedure*.

Table 13. Methodological designs in selected think-aloud studies on the role of consciousness in learning L2 grammar.

Researcher(s)	Aim	Stimulus	Participants
Alanen (1995)	To investigate the effects of rule presentation and input enhancement on the acquisition of grammar	Two passages in semi-artificial Finnish with a picture and Finnish-English glossary	36 L1 English university students
Jourdenais et al. (1995)	To investigate whether textual enhancement promotes noticing grammatical forms and subsequent production	A writing task: narration on the basis of a picture story; Target forms: Spanish preterit and imperfect	14 L1 English learners of L2 Spanish (university students)
Rosa and O'Neill (1999)	To investigate the effects of awareness and the degree of explicitness in a problem-solving task on intake	A multiple-choice jigsaw puzzle (based on Spanish grammatical structures)	67 L1 English learners of L2 Spanish (university students)
Leow (2000)	To investigate the effects of awareness or its lack on intake and written production of morphological forms	A crossword puzzle	32 L1 English learners of L2 Spanish
Hama and Leow (2010)	To investigate the role of awareness in rule learning	English text with novel (artificial) determiners	34 L1 English participants
Morgan-Short, Heil et al. (2012)	To explore simultaneous attention to form and meaning in L2 written input	A 354-word passage in Spanish and a written comprehension test	308 L1 English learners (university students) of L2 Spanish (121 in the think-aloud group)

Calderón (2013)	To investigate the relationship between learner proficiency, depth of processing, levels of awareness, and intake of a grammatical structure	A 304-word aural input passage	24 L1 English learners of L2 Spanish
De la Fuente (2015)	To investigate the effects of explicit metalinguistic feedback on L2 grammatical awareness	Corrective feedback through CALL	40 L1 English learners of L2 Spanish (university students)
Hsieh, Moreno and Leow (2015)	To compare the effects of face-to-face and computer-assisted instruction on grammatical awareness	Exposures and completion of the recognition and written production tasks	13 L1 English learners of L2 Spanish (university students)
Cerezo, Caras and Leow (2016)	To explore the effects of inductive vs. deductive instruction of the acquisition of a complex L2 structure	Playing *The Gustar Maze* game	70 L1 English of L2 Spanish (about 12 in the TA group)

As can be seen in Table 13, most of the studies aimed to investigate consciousness (or its absence) as a construct evoked by the selected learning conditions and its effects on the processing of grammatical material or on intake (Alanen 1995; Jourdenais et al. 1995; Rosa and O'Neill 1999; Leow 2000; Hama and Leow 2010; Calderón 2013; Cerezo, Caras and Leow 2016). Some of the studies, on the other hand, explored the effects of different kinds of stimulation on the emerging awareness in learners' minds (e.g., Morgan-Short et al. 2012; De la Fuente 2015). The fact that they were based on concurrent verbal reports (or employed them as a subsidiary data elicitation technique) leads to a conclusion that process-orientation, realized as tracing participants' mental operations while they were engaged with the treatment tasks, was their main focus. As can be seen on the basis of the study aims, however, some of them included a product-orientation as well, understood as investigating the product of learning after the mental processing. It can thus be inferred that constructs such as the presence of consciousness at the level of noticing and at the level of understanding, as well as levels of conscious processing were the object of explorations. In some of the studies (Leow 200; Hama and Leow 2010), the primary focus was on implicit learning processes and implicit knowledge.

A closer look at the stimuli used in the studies to evoke thinking aloud reveals that the input and tasks always contained some problem-solving element. In TAP studies, it is crucial to use tasks that are sufficiently engaging to ensure mental processing and motivate the expression of one's thoughts. The input texts were in some cases enhanced with semi-artificial linguistic elements, which stimulated cognitive processing (Alanen 1985; Hama and Leow 2010). In some studies (Rosa and O'Neill 1999; Leow 2000; Cerezo, Caras and Leow 2016), participants were engaged in doing puzzles or playing a game. In De la Fuente's (2015) study, responding to corrective feedback was the stimulation for TAPs, and in Morgan-Short et al.'s (2012) study, after exposure to an input text, the participants did a comprehension task. In other studies, the TAPs were collected while the learners were involved in written mode production tasks (Jourdenais et al. 1995; Hsieh et al. 2015). In just one study (Calderón 2013) the participants were exposed to oral input as a stimulation for thinking aloud. The study was conducted in laboratory conditions, but no information is provided about the specific stimulus for collecting TAPs.

The participants in all of the studies were adult learners with L1 English. In most of the studies (eight out of ten), L2 Spanish structures were the instructional target. Concerning the sizes of the samples, it can be seen in Table 13 that they were rather limited in most of the studies. With the exception of Morgan-Short et al.'s (2012) study conducted on a large number of participants (121 in the TA condition), the samples included between 13 (Hsieh et al. 2015) and 67 (Rosa and O'Neill 1999). In two of the studies, the sample size did not exceed 20, and in six of them it was in the 20-40 range. In Cerezo, Caras and Leow's (2016) study, out of the 70 participants, only about 12 (half of the inductive group) produced TAPs apart from taking the oral and written production and reception tests. The aim of this setup was to explore the cognitive processing while doing the induction task, but also to control the potential reactivity factor.[9] In De la Fuente's (2015) study, TAPs were not collected in one-to-one sessions, but each participant received a small recording device and recorded their thoughts during a computer-mediated task. In the two studies which involved larger samples (Rosa and O'Neill 1999; Morgan-Short et al. 2012), TAPs were collected simultaneously from all participants in labor-

[9] The limited number of participants in TA research is motivated by logistic reasons, connected with conducting one-to-one sessions and transcription of the protocols.

atories equipped with headphones and microphones (in Morgan-Short et al.'s study in a multimedia classroom equipped with recording software), which largely facilitated the data collection procedure.

Summing up the review of the studies, it is evident from their methodological designs that they aimed to obtain data related to conscious learning and explicit knowledge about L2 grammatical features, and they tapped into both processes and products (with the former being more prominent in most of these studies). The brief overview of examples of TAP-based investigations highlights important methodological considerations involved in their design.

On the basis of the review of the methodological considerations in conducting TAP research, it can be stated that:

- The TAP methodology requires following a set of steps, before, during, and after collecting the data.
- TAP data are of a qualitative character, but they can be analyzed with the use of both qualitative and quantitative methods, involving, for example, content analysis and frequency counts.
- It is common for researchers to combine the TAP method with other data collection techniques in order to elicit complementary data which will allow a deeper and broader insight into the investigated phenomena.

4.4. Concluding remarks

In this chapter, the research methodology applied in studies on consciousness in SLA was outlined. It was shown that since consciousness and related concepts are particularly challenging to measure, they need to be operationalized in ways which will make their investigation possible. Introspective methods, which provide an insight into participants' mental processing, appear to aptly address this challenge. The chapter has reviewed several data elicitation techniques, both concurrent and offline, which can make the task of measuring consciousness and its effects on L2 learning possible. Not all of these techniques were used in the study conducted for the purpose of this work, however, a more comprehensive view on different options was needed to provide a fuller picture of research methodology on explicit learning processes. Moreover, the review of selected studies illustrates how other researchers have implemented the var-

ious methodological options in their studies: what specific techniques have been popular, how they have been combined, how large the samples have been, etc.

Concentrating on various options in research design, this chapter serves as a transition between the primarily theoretical, literature review of the present work and the empirical part, in which the study conducted by the author will be described. As was already stated in the Introduction to this chapter, the overview of methodological considerations (section 4.1.3.) which need to be taken into account at the stages of planning, conducting and analyzing TAP-based research, together with a review of selected examples of recently published studies, are believed to give a necessary basis for an evaluation of the design of the study described in the following three chapters (Chapters 5-7). In Chapter 5, a detailed account of the methodology involved in the study will be provided. Although the study involved a number of data elicitation methods, TAP was the most prominent one, serving as the main source of the research data. Therefore, it received the most attention and space in the present chapter, with a whole section (4.3.) devoted to a description of TAP procedures. It is assumed that the specification of the recommendations for conducting TAP-based studies on the basis of the literature will be helpful in following the description of the research procedures presented in the following chapter.

Chapter 5

The study: Research methodology

5.0. Introduction

The present chapter is the first in a sequence of three chapters devoted to the presentation of an empirical investigation conducted by the author of this work. In the previous chapter, ways of researching consciousness in SLA studies, particularly in relation to learning L2 grammar, were discussed on the basis of the literature on the topic. It was underscored that conscious processes and processing in the field of SLA are empirically explored through a variety of measures typically associated with attempts to gain access to explicit knowledge and explicit learning, such as: concurrent and retrospective verbal reports, eye-tracking procedures, and different types of tests, including grammaticality judgment tests. While researchers have a broad repertoire of measurements at their disposal, the selection of procedures for a given study is informed by the specific aims formulated within a given investigation, and by a precise definition of the concepts it sets out to explore.

The approach toward viewing and researching consciousness assumed in this study is reflected in its aims and in the research procedures which will be explained in the present chapter. The objective of this chapter is thus to elaborate upon the methodology involved in the design of the study. In the following sections, the purpose of the study, its participants, the data collection tools, and the procedures employed in eliciting and analyzing the research data will be described in detail.

5.1. Statement of purpose

The aims of the study, the main concepts and variables addressed in it, and the specific research questions will be presented in this subsection.

5.1.1. The aims of the study

The main aim of the study was to examine the role of learners' *L1* in raising their *consciousness* about the target L2 grammatical structures in instructed *grammar learning* tasks.

More specifically, the study aimed to explore the following issues:

- the mental processing, indicating learners' consciousness of the target L2 structures, which took place while they were working out the patterns and meanings of the target grammatical structures in processing L2 input and performing grammar tasks,
- the specific functions of the L1 in processing the L2 grammatical material,
- learners' explicit knowledge of the target structures resulting from the mental processing as evidenced in output tasks,
- learners' perceptions about the role of the L1 as raising their grammatical consciousness in doing the tasks and in learning L2 grammar.

The general aim of the study led to the formulation of five specific research questions, which will be outlined in section 5.1.3. First, however, key concepts and variables addressed in the study will be explained.

5.1.2. Central concepts and variables

Since *consciousness* and *conscious processing* are the key concepts explored in the present study, the research tools and procedures were selected to tap into the participants' *explicit* instructed learning and knowledge of L2 grammar. This follows the assumption voiced by researchers (e.g. Dörnyei 2009; Hulstijn 2005; N. Ellis 1994, 2008; R. Ellis 2009) that at least a certain level of consciousness is a characteristic and distinguishing feature of explicit learning and knowledge. Following Schmidt's (1990, 1995) conceptualization of consciousness at the levels of knowledge, intention and awareness, three levels of consciousness from his general framework for consciousness-oriented SLA research were explored in the study:

- consciousness as *noticing* (i.e. embracing processes like paying attention to linguistic forms and meaning; detecting features of grammatical forms and certain regularities; recognizing that some forms in the input are salient and relevant for doing the required tasks);

- consciousness as *understanding* (i.e. inferring rules and patterns; understanding, or at least attempting to understand, how a structure is formed and what it means; displaying conscious control in processing the input, which is revealed by the use of cognitive and metacognitive strategies);
- consciousness as *knowledge* (i.e. explicit knowledge of the target structures evidenced in the ability to make correct grammaticality judgments and gap-fill output tasks).

Processes within the *consciousness as noticing* perspective were considered to reveal a *lower level* of conscious processing, while the mental activity within *consciousness as understanding* was considered to reflect a *higher level* of conscious processing.

In the present study, the concept of *learning* was viewed, according to the tri-dimensional perspective proposed by Leow (2015a: 127), as (1) both a process and a product, (2) system learning (as opposed to items learning), and (3) explicit learning. Learning as a process was operationalized as the *mental processing strategies* used by the participants while they were processing the input and performing the tasks, and learning as a product was operationalized as the participants' *accuracy* on tests. The perspective on learning as a process and as a product devised by Leow (2015a) as a five-stage fine-grained framework, which informs the present study, was outlined in detail in Chapter 1 (subsection 1.2.3.). In the present study, the process dimension on learning was traced on the input-to-intake and intake-to-internal system stages, while the product dimension concerned the internal system and output stages of learning. Although both process and product perspectives on learning were addressed, it needs to be acknowledged that the *process* perspective was central in the present study. The process-orientation is in line with input-based perspectives on acquisition, which highlight the gradual development of mental representations and construction of a language system in a learner's mind (Larsen-Freeman and Long 1991; VanPatten 1994, 1996, 2012, 2017a). It also corresponds with a claim made by R. Ellis (2009: 9) that research on explicit learning needs to "obtain information about the microprocesses involved in the training (learning) phase of such studies," and not only about the product of learning. This dual (process and product) orientation undertaken in the study, as well as the main concepts and variables that it

addressed, called for the implementation of a *mixed-methods approach*, incorporating both qualitative and quantitative methods in its design.

The *core concepts* identified in the *qualitative* strand of the investigation included: the nature of the mental processing, as denoted by strategy use, and the participants' cognitions about the role of the L1 in learning L2 grammar.

The following *variables* (with reference to Caldwell 2014: 52-53; Seliger and Shohamy 1989: 92) were identified in its *quantitative* strand:

- independent variables: enhanced bilingual input (containing L1 clues and typographical enhancements); enhanced monolingual input (containing a rule in the L2 and typographical enhancements);
- dependent variables: the nature of conscious processing of L2 data operationalized as frequencies of mental strategies (all strategies identified and those ranked as lower- and higher-processing); the effectiveness of processing operationalized as task scores;
- extraneous variables: participant-related (age, gender, learning styles, previous learning experience), instruction-related (the target structures, the types of tasks, the timing of instruction).

5.1.3. Research questions

In line with the main aim of the study and the core concepts and variables, the following research questions were formulated:

RQ 1: What types of mental strategies denoting consciousness will be stimulated by processing input with L1 clues and with L2 monolingual clues, and how will the strategy use differ between the bilingual and monolingual groups?

This question focuses on identifying the mental strategies that will be employed by the participants in processing two types of enhanced input, bilingual (containing underlined target L2 forms and L1 translations) and monolingual (containing underlined target L2 forms and a rule in the L2), and in doing the subsequent tasks. Specifically, it addresses the differences between the two groups in terms of the frequencies of mental strategy use, and in the levels of processing the grammatical input, as evidenced by the use of strategies denoting higher- and lower-level cognitive processing. Strategies connected with focal attention and higher-order reasoning are assumed to signify higher levels of consciousness, as suggested by previous research,

e.g., Calderón (2013), Hsieh, Moreno and Leow (2015), Leow et al. (2013). In the investigation, both the types of strategies used and their frequencies are considered to reveal degrees of conscious processing in learners' minds. Both groups of participants are expected to use the same or similar kinds of mental strategies; however, due to the presence of the L1 variable in the bilingual group, it is hypothesized that there may be differences between them in terms of the intensity of the use of certain mental strategies, and in terms of the levels of processing (e.g., consciousness as noticing and as understanding in relation to Schmidt's (1990, 1995) concepts).

RQ 2: What functions will the L1 serve in processing the input, and in doing the grammatical tasks?

Since the presence of the L1 in the enhanced input task is an independent variable in the bilingual group's treatment, it is assumed that it will influence this group's processing and the performance of the subsequent tasks. This question addresses the cognitive, metacognitive and affective roles of the L1 discussed by researchers such as Butzkamm and Caldwell (2009), James (1996), Macaro, Graham and Woore (2016), McMillan and Rivers (2011), and many others, whose ideas were exhaustively discussed in Chapter 3. In relation to this literature, it is assumed that the L1 will facilitate the comprehension of L2 input, the detection and understanding of form-meaning mappings, and the inference of L2 rules. Moreover, it is predicted that the L1 may influence all participants' processing, even in the absence of the L1 clues in the input. As discussed in the literature (e.g., Hentschel 2009; Niżegorodcew 2007; Ringbom 2007), translation is a natural way of noticing and discovering L2 patterns, and often serves as a compensation strategy. This will also be taken into account in the analysis.

RQ 3: What differences will there be in the gap-fill tasks and grammaticality judgment tasks scores obtained by both groups?

The gap-filling tasks and the grammaticality judgment tests serve to obtain participants' scores on the product-orientation of learning (Leow 2015). The processing of the L2 data in the enhanced input can influence participants' ability to make judgments and produce output, which serves as evidence of their emerging explicit knowledge and is another instantiation of raised consciousness (R. Ellis 2002, 2009; Hulstijn 2005). This as-

sumption is based on previous research on the effectiveness of explicit learning (e.g., Gass, Svetics and Lemelin 2003; Indrarathne and Kormos 2017, 2018) and on the effectiveness of consciousness-raising instruction, in which learners are deeply engaged with learning tasks (e.g., De la Fuente 2009; Eckerth 2008; Wong 2015). Any between-group differences on the tests will thus be interpreted as providing information about the effectiveness of L1 versus L2-only treatment conditions in raising learners' consciousness about the target L2 grammatical structures.

RQ 4: What correlation will be revealed between the use of mental processing strategies and grammar test (gap-fill and grammaticality judgment) scores, and scores obtained on the grammatical sensitivity test?

The use of certain mental strategies, e.g. those denoting higher-level processing, is assumed to reveal higher degrees of consciousness and thus lead to better performance on the tasks. At the same time, grammatical sensitivity is an individual factor found to influence metalinguistic knowledge and grammar learning efficiency (Roehr 2007; Skehan 2015; VanPatten and Smith 2015). Therefore, it is assumed that the number and types of mental strategies used by participants (as individuals and as groups), as well as their performance on the grammaticality judgment and gap-filling tasks, will be related to their grammatical sensitivity test measures.

RQ 5: What opinions will the participants express about the performed tasks, especially about the functions of the L1 in their processing, and, more generally, about the role of the L1 in learning L2 grammar?

Learners' perceptions about the usefulness of instruction influence their motivation to learn and, indirectly, their attainment. As manifested by previous research (e.g., Brooks-Lewis 2009; Liao 2006; Rolin-Ianziti and Varshney 2008), learners' attitudes toward the L1 in L2 learning and teaching are generally positive, and the L1 is considered to be an important resource in L2 learning. In view of this, the participants' opinions about their performance of the tasks in the course of the study as well as about their L2 grammar learning in general are expected to provide interesting insights into the role of the L1 in instructed learning of L2 grammar. Moreover, the debriefing in the form of learner feedback is assumed to complement the findings about the consciousness-raising function of the L1 obtained through other instruments.

5.2. Mixed methods research design

The present study assumed a *mixed methods* research orientation because it applied both quantitative and qualitative methods of data elicitation, and, as a result, yielded both closed-ended (quantitative) and open-ended (qualitative) responses (Dörnyei 2007; Creswell 2014; Riazi and Candlin 2014). Mixed-methods research, defined by Hanson et al. (2005: 224) as "the collection, analysis, and integration of quantitative and qualitative data in a single or multiphase study," has currently gained popularity in the field of applied linguistics because of the dynamic and complex processes and phenomena that it often embraces (Hashemi and Babaii 2013).

Following Creswell's (2014: 15) instruction, the two databases, qualitative and quantitative, were mutually connected, and they explored overlapping issues, which led to a more comprehensive analysis of the data. The main reasons for this research design are ensuring triangulation of the data and creating conditions for complementarity, which are included by Riazi and Candlin (2014: 143) among the purposes of mixed-methods research designs. They define triangulation as the deliberate employment of more than one data collection and analysis method undertaken in order to get a fuller perspective on the phenomena under investigation and to avoid a bias in the interpretation of data elicited through a single method. Similarly, Mackey and Gass (2005: 181) discuss 'methodological triangulation,' defined as the application of multiple methods of data elicitation and sources of data, as a way to ensure sound support for the findings of a study and the formulation of more comprehensive conclusions. Apart from 'methodological triangulation,' understood as a combination of introspective and other elicitation techniques, Matsumoto (1993: 46) distinguishes 'data triangulation,' characterized by a combination of "learners' mentalistic data from multiple sources." More specifically, Matsumoto lists four possible combinations of methods and kinds of data: (1) of concurrent and retrospective self-report data, (2) of retrospective data elicited from different sources, (3) of verbal report with performance data, and (4) of verbal report with observation data. In the present study, the triangulation involved a combination of concurrent verbal report data (think-aloud protocols) with retrospective data (interviews), and with performance data (test results).

Moreover, as has been said above, another important aim of employing the mixed-methods approach was to allow for complementarity of the

obtained data. According to Riazi and Candlin (2014: 144), this aim is especially relevant in researching multi-layered data, as complementarity is achieved when quantitative and qualitative methods are used in relation to different aspects, or layers, of the same phenomenon, offering insights that contribute to a comprehensive set of results and their interpretation. They further state that an interdependent and concurrent collection of different kinds of data is most conducive to their complementarity, because this can "cast as much light as possible on the complexity of the research at issue." It was, therefore, believed that this kind of methodology would be particularly appropriate to collect and analyze research data in the present study: a study on consciousness-related mental operations stimulated by the use of L1 clues in processing L2 grammatical structures.

The basic *research design* in the present investigation was the *convergent parallel mixed methods design*. It is characterized by a collection of both quantitative and qualitative data (QUAN + QUAL) at roughly the same time, their subsequent analysis, separate for the two kinds of data, and, finally, converging them into a comprehensive analysis and interpretation (Creswell 2014: 15). Figure 1 schematically presents this general research design.

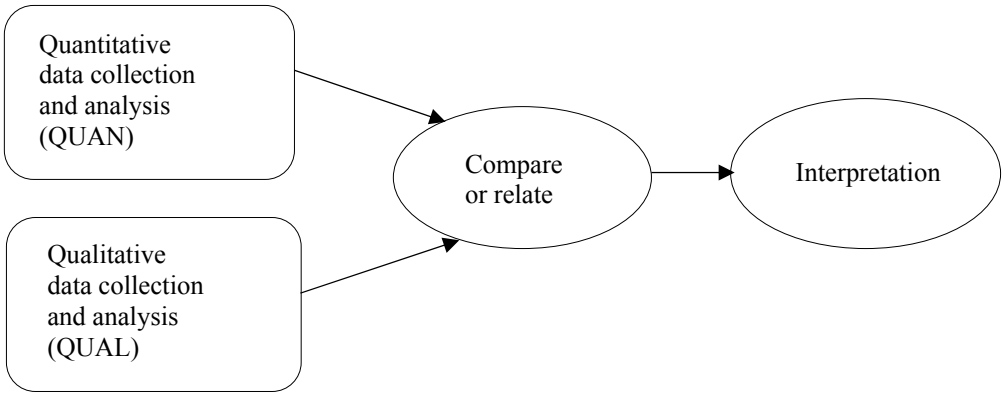

Figure 1. The general convergent parallel mixed methods research design (Creswell 2014: 220).

The design applied in the present study was based on the one presented in Figure 1. Its graphic representation is displayed in Figure 2. As can be seen, the data collection process was extended over two Sessions, each devoted to a different grammatical structure. The analysis of the elicited

data was performed separately for each kind of data, quantitative and qualitative, but collectively for both Sessions. All results were merged at the comparison and interpretation stages, which is the essence of convergent studies. The comparing/relating stage involved both 'data transformation,' that is, quantification of some of the qualitative data, and 'side-by-side comparison' (Creswell 2014: 222-223), which consisted in reporting quantitative (statistical) and qualitative (themes) data separately and comparing them in the discussion section.

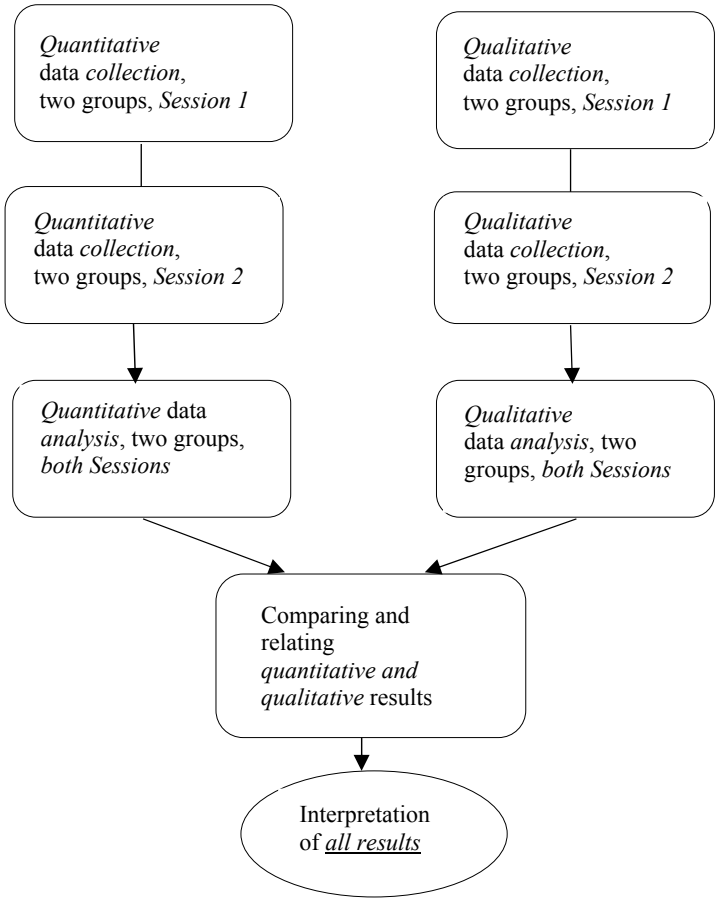

Figure 2. The convergent parallel mixed methods design applied in the study.

The design applied in the study embraced the administration of several data elicitation methods, tools, and materials. These will be described in detail in sections 5.5. and 5.6.

5.3. The sample

The participants of the study were 30 learners of English, who were students in the 1st year of the BA programs at the Faculties of Educational Studies, and Geographical and Geological Studies at Adam Mickiewicz University in Poznań. There were 26 females and 4 males among them. The mean age of the research sample was 20 (min. 19, max. 25).

Concerning their proficiency in English, the participants were at the A2 level according to the reference levels outlined in the *Common European Framework of Reference for Languages: Learning, Teaching, Assessment* (Council of Europe 2001). Thus, following the document's specifications, in more descriptive terms, this level is referred to as 'basic user.' With regard to the range and accuracy of language use, a learner at this level is expected to be able to use "basic sentence patterns" to "communicate limited information," and use "some simple structures correctly," although with frequent systematic mistakes (Council of Europe 2001: 29). The participants' proficiency was established at the A2 level according to the University online placement test, administered outside the present research procedures, the aim of which was to assign students to language groups at an appropriate level of advancement. The external placement procedure took place about a month before the study began, and the participants had just started their English instruction at the University. The A2 level is the lowest level in English as a foreign language courses offered at the University; no A1 level courses are organized. The low level of proficiency was the main criterion in the sampling. It needs to be admitted, however, that although the sample was diagnosed by the University placement procedure to be roughly at the same proficiency level, considerable variation was discovered in relation to the length of previous learning of English by the participants. The mean length of learning English was 6.5 years (min. 3, max. 11), including primary school education, and often, which was indicated by some participants in the demographic questionnaire, including some gap years in English instruction (the longest reported break in learning was five years) across the different levels of schools. Although all participants had received previous instruction in formal school settings, six of them also admitted having participated in language courses or received private one-to-one tuition, and another five declared having learned English through self-study. Therefore, it can be concluded that on account of different previous learn-

ing histories reported by the sample, their proficiency level, although roughly at the A2 level, displayed a considerable amount of variation.

For the purposes of the study, the sample was divided in a random manner into two subgroups of 15 students (each consisting of 13 females and 2 males), and each subgroup subsequently received research treatment which was to a certain extent identical for both groups; the key factor distinguishing the treatment offered to the groups was the *presence or absence of L1-based enhancements* in the input they were processing. Therefore, for clarity of data presentation, in subsequent subsections and chapters, the group which was exposed to English-only input will be referred to as the *monolingual group (MG)*, and the group which worked on L1-enhanced input will be referred to as the *bilingual group (BG)*. Consequently, the participants will be referred to by the group symbols and numbers assigned to them, e.g. B1, B2, B3, … B15 (students from the BG), and M1, M2, M3, … M15 (students from the MG).

Apart from English, all of the participants had studied one or two other foreign languages, the most popular one being German (23 out of 30 of them had learned this language). French was listed by eight participants, and Russian by four of them. Twenty-six participants evaluated their command of the other foreign languages as basic, and the remaining four – as intermediate. None of the participants declared learning another foreign language at the time of the study.

The recruitment procedure of the research sample involved the administration of a grammaticality judgment test to 117 students at the beginning of the summer term of the 1st year of their studies, at the time when they were starting foreign language courses according to the University curriculum. The recruitment test comprised 48 sentences representing four grammatical structures: the Present Perfect tense, the First Conditional, the Passive Voice, and the Second Conditional. There were 12 sentences related to each of the structures. Half of the sentences were grammatically correct, while the other half contained grammatical mistakes. For each sentence, there were three options for the students to choose from: 'correct,' 'incorrect,' and 'I don't know.' In the original format of the test, the options were provided in Polish.

The right answers were counted on the basis of the correct and incorrect options indicated by the students ('I don't know' answers were disregarded in the scoring). The two structures for which the mean numbers of right answers were the lowest were selected as the target structures in the

study. These were the *First Conditional* and the *Passive Voice*. Subsequently, those of the students who scored 50% or less for each of these structures were invited by email to participate in the study on condition that, additionally, they did not score above 60% on the remaining structures (Present Perfect and Second Conditional). The objective behind this procedure was that a low familiarity with the target structures, and a low general proficiency level in English were vital pre-conditions for participating in the study. After analysis of the recruitment test results, invitation emails were sent to 53 students, out of whom 30 eventually took part in the study. The remaining students either did not respond to the invitation or found it difficult to accommodate to the research timelines.

5.4. The target structures

As stated above, two English grammatical structures, the *First Conditional* and the *Passive Voice*, were selected as the target structures in the present study. The practical criterion for selecting these two structures was derived from the recruitment procedure described in 5.3.; these were the structures which caused the research sample most difficulty at the recruitment stage.

It seems likely that the participants had encountered the First Conditional and the Passive Voice at school since they had learned English for 3-11 years before the onset of the study. However, as was stated above, it was the actual level of familiarity with the structures, verified at the recruitment stage by a grammaticality judgment task, and confirmed by the participants' assignment to an A2 level group at the University on the basis of a placement test, that was considered to be the main criterion for participating in the study. Besides, as previously explained, although the study was both process- and product-oriented, the *learning-as-process* concept of learning was central to its design. To this end, it focused on mental operations involved in the conscious processing of the input and in doing the grammar tasks. Even though a low level of familiarity with the target structures was an important pre-condition in the recruitment of the study participants (also because the facilitative role of the L1 in processing L2 grammar is more readily assumed at lower proficiency levels), the exact levels of participants' familiarity with the structures and potential differences within the sample were considered to be of lesser importance.

The two structures selected as the targeted structures in the study, the First Conditional and the Passive Voice, appear to be at a similar level of *formal complexity*, neither of them being simple in this respect. First Conditional structures are composed of two clauses, main and subordinate, and employ a combination of tenses – the future tense in the main clause and the present simple tense in the subordinate clause. Passive structures include a form of the verb 'to be' and a past participle. The variety of forms of the verb 'to be' across different persons and tenses as well as irregular and regular forms of the past participle account for the considerable level of formal complexity of the structure. The Passive Voice, however, seems to be at a higher level of conceptual complexity than the First Conditional. As noted by Larsen-Freeman (2003: 46) and Pawlak (2006: 358), it is not easy to understand its meaning and learn how to use it correctly, especially as it is not very frequent in natural everyday English.

Different criteria for evaluating the level of difficulty of an L2 grammatical structure have been distinguished by researchers. Spada and Tomita (2010: 266) enumerate three of the most frequent perspectives for structure complexity analysis: psycholinguistic (investigating whether learners are developmentally and/or cognitively ready to acquire a given structure), linguistic (connected with the formal features of a structure), and pedagogical (examining how easy a structure is to understand and learn). Within the linguistic perspective, DeKeyser (2005) distinguishes complexity of form, of meaning, and of form-meaning mapping. Complex structures in terms of their form are characterized, for example, by morphosyntactic difficulty, while meaning-related complexity is connected with highly abstract rules regulating the use of a given form, such as the article system in English. Form-meaning mappings are difficult if, for example, a form is not essential semantically or its use is optional. According to DeKeyser (2005: 3), the level of transparency of the form-meaning relationship of a given structure is a major factor influencing how easy or difficult it will be for a learner to acquire it, particularly in self-study contexts. Another factor responsible for structure difficulty is its salience in the input, because structures that are difficult to notice are more difficult to learn (J. Williams and Evans 1998). J. Williams and Evans (1998: 141) evaluate the Passive Voice, one of the target structures chosen for this study, as formally and semantically complex because of its combination with different tenses and low transparency concerning its use.

Moreover, and of particular relevance in the present work, *L1-L2 similarity* levels are often cited as an important criterion for predicting the complexity of a given L2 structure for learners (Spada and Tomita 2010: 268). For example, on the basis of their L1, learners may create an interlanguage rule which is broader in scope than the target L2 rule (L. White 1991). DeKeyser (2005: 5) agrees that differences in the semantic systems between the L1 and the L2, or different levels of explicitness of expressing the same meaning by grammatical structures in the L1 and the L2, can be a serious cause of difficulty for L2 learners. It is, therefore, useful to refer to L1-L2 contrastive studies elaborating on the similarities and differences between grammatical structures with the aim of evaluating their levels of difficulty for learners.

Considering the assumed usefulness of the L1 in grasping the form and meaning as well as the form-meaning mappings of the target structures within the present study, the two structures appear to be similar in this respect, which was another factor in their selection. Both structures appear in Polish and in English, and both share some features as well as display some differences across the two languages. According to Willim and Mańczak-Wohlfeld (1997: 138-139), conditional sentences express similar theoretical and hypothetical meanings in both English and Polish; similarly, Polańska (2006: 17) acknowledges that in both languages conditional sentences basically express a speaker's belief concerning a likelihood of a condition being fulfilled or not, and can be referred to as 'open' or 'unreal.' With regard to the form of the First Conditional, however, the main difference and difficulty for Polish learners lies in the fact that although a reference is made to a future hypothetical situation, English uses the present tense in the if-clause and the future tense in the main clause, while Polish uses the future tense in both clauses. The differences in the use of tenses is illustrated by Polańska (2006: 17-18) on the following example:

> If it rains, I'll stay at home.
> Jeśli będzie padał deszcz, zostanę w domu.

Concerning the Passive Voice, Willim and Mańczak-Wohlfeld (1997: 160-161) contend that the form of passive sentences is generally the same in both languages (e.g. "Some sweets were bought for the children" – "Słodycze zostały kupione dla dzieci"). In a similar vein, Krzeszowski

(1990: 38) explains that the passive construction, which involves a form of an auxiliary verb (usually 'to be') and a past participle, is fundamentally identical in Polish and English. However, as noted by Fisiak, Lipińska-Grzegorek and Zabrocki (1978: 199), two main crosslingual differences exist: the auxiliary verb-subject noun agreement in terms of number and gender in Polish (nonexistent in English), and restrictions on object preposing in Polish. With regard to the latter, only a direct object of an active verb can become the subject of a sentence in the passive voice in Polish, while in English both direct and indirect objects can be moved to the subject position. This restriction, being a major difficulty for Polish learners of English, is also highlighted by Krzeszowski (1991: 398), who explains that in Polish, one sentence in the active voice can only have one equivalent in the passive voice, while in English more passive sentences can be formed on the basis of one active sentence. He illustrates this with the following examples:

> They showed **me the room.**
> = **The room** was shown to me.
> = **I** was shown the room.
> *Pokazali **mi pokój**.*
> = ***Pokój** został mi pokazany.*
> = ***Ja zostałem pokazany pokój** (Krzeszowski 1991: 399).

Another difference concerns a more limited range of use of the passive voice in Polish than in English. For that reason, passive sentences in English are often translated into Polish with the use of other forms, e.g. impersonal structures, as in the following example: "He was trusted by his friends – Ufano mu/Miał zaufanie swoich przyjaciół" (Krzeszowski 1991: 400). Fisiak, Lipińska-Grzegorek and Zabrocki (1978: 200) state that as a result of this, when the use of the structure is concerned, "passive formation seems to be less important in Polish than in English."

5.5. Data elicitation methods and instruments

A number of data elicitation methods were applied within the mixed-methods design of the present study with the objective of eliciting data which would be mutually complementary and would contribute to a more comprehensive picture emerging from the findings.

The following quantitative and qualitative data elicitation methods were applied: a demographic questionnaire, think-aloud protocol (TAP), two grammaticality judgment tasks (GJ tasks) applied in the pre-test/post-test format, two gap-fill (GF) tasks, a grammatical sensitivity test, and an interview. Their main characteristics will be briefly described in the subsequent subsections. Procedures for their implementation and for analyzing the elicited data will be explained in this section and in section 5.6., respectively.

5.5.1. Demographic questionnaire

The aim of the demographic questionnaire was to elicit data about the respondents in order to enable subsequent characterization of the research sample (as was done in section 5.3.). According to Norris et al. (2015: 471), information about the study participants ("key demographic characteristics") is a relevant part of every study report. The demographic questionnaire consisted of seven questions and elicited information about participants' gender, age, the faculty at which they were studying, as well as information about their previous experience of learning English and other foreign languages, and about current learning of foreign languages apart from English. Most of the questions were open-ended (with space provided for submitting the relevant information), while two comprised both closed-ended and open-ended items. These were: the question about the place of previous instruction in English, with an open-ended "other" option, and the question about knowledge of other foreign languages, in which a closed-ended selection of the proficiency level was added. To ensure full clarity of the items for the participants given their low proficiency in English, the language of the questionnaire was Polish. The original questionnaire in Polish can be found in Appendix 1.

5.5.2. Think-aloud protocols

The think-aloud protocols (TAPs) were collected over three stages of the data collection procedure: during the input processing task (which will be referred to in subsequent sections as the IP task), during completion of the gap-fill task (henceforth, the GF task), and during the completion of the post-test grammaticality judgment task (the GJ task). Therefore, as can be seen, TAPs were collected during the training step (exposure to the en-

hanced input) and during the testing tasks (GF and GJ). A similar procedure was employed in other studies reported in the literature, e.g. Rebuschat et al. (2015: 327). The specific procedures included in these three tasks (IP, GF and GJ) will be described in the following subsections; here, an account of the TAP procedure utilized in the study will be provided.

The language of the TAPs was Polish; this was motivated by the participants' low level of English, which would have prevented them from free expression of their thoughts if they had been required to use English. The language choice followed advice formulated by Bowles (2010: 115), who claims that in order to avoid confusion, participants should be explicitly informed about the language in which they are expected to think aloud, and in the case of lower-level learners, the L1 is recommended. The proper TAP procedure was preceded by a detailed instruction for the participants read out by the researcher. To this end, an adapted version of the instruction found in Jourdenais et al. (1995: 194) was used. The instruction was provided in Polish (Appendix 2); below, for illustrative purposes, its English translation is given:

> In the present study, I am interested in what you think about while getting acquainted with a grammatical structure in English and while doing grammatical exercises. Therefore, I would like you to think aloud while you are doing the tasks connected with working on the text and the activities. Thinking aloud means saying what you are thinking when trying to solve a given problem. I would like you to speak continuously from the beginning to the end of your assignment. Do not consider what to say, do not plan your utterances, and do not explain to me what you mean. Try to behave as if you were alone in the room. It is important not to stop speaking. Therefore, if you stop for a longer while, I will remind you of this by asking: "What are you thinking?". I would like to remind you that your utterances will be audio recorded and that your participation in the study is anonymous. Is the study procedure clear to you? As an illustration, I will now demonstrate thinking aloud while doing a multiplication task, and then I will ask you to do the same.

The TAP was considered to be an appropriate data elicitation procedure for a number of reasons, the most important one being that it is advocated in SLA literature as a way of eliciting information on *mental processes* involved in performing a task, and this kind of data was assumed to provide an insight into the relevance and functions of the L1 clues present in the input. It was assumed that other procedures, such as tests, would not elicit data that are robust enough to draw conclusions about the importance of the L1 (and other

clues, for that matter) while consciously attending to L2 structures. For this reason, while the TAP data were the foundation of the present investigation, data elicited through other techniques supplemented and enriched them. This is in line with recommendations provided by experts on the think aloud procedure in research. According to Bowles (2010: 118), "think-alouds would seem to be appropriate to use in conjunction with untimed GJTs, (…) and any other type of assessment designed to elicit explicit knowledge, such as tests of controlled written production."

5.5.3. Enhanced input

The main function of the input was to elicit TAP data. The enhanced input materials for processing by the participants consisted of five brief texts (50-70 words each). Session 1 texts focused on the First Conditional, and Session 2 texts – on the Passive Voice. Taking into account the cognitive load of processing grammatical material by low-proficiency learners, a selection of five brief texts was considered to be a better solution than one longer text. On the other hand, short texts were considered to be more appropriate as input than a set of separate sentences, from the point of view of creating opportunities for the participants to attend to both linguistic features and the meaning conveyed by the target forms. This is considered to be an important factor in enhanced input studies (e.g., Sharwood Smith 1993, 2014).

Overall, the following kinds of enhancement were used in the input texts: input flooding, the underlining of the target forms, bolded Polish translations of the underlined forms in brackets, and a grammatical rule in English provided in a box at the top of the page. The precise selection of the input enhancement techniques differed for the monolingual and the bilingual groups. Monolingual group (MG) participants were exposed to texts with underlined target forms and a rule in English provided in a box, while in the bilingual group (BG) input, the structures were underlined and Polish translations of these parts of sentences were provided in brackets. In the case of the BG, no rule was given. The rationale behind the selection of the input enhancement for the MG and BG conditions was that both groups were given an opportunity, in the form of clues embedded in the input, to induce the patterns and meaning of the examples of structures through conscious processing. While the BG, in relation to the aims of the research, needed clues in the form of L1 translations, the MG needed some kind of L2-based clues that would be equivalent in offering them

help in arriving at conclusions about the structures. It was, therefore, assumed that a rule formulated in simple English could serve this function. However, it should be noted that while the enhanced input demanded induction of the rule by the BG, in the case of the MG, deductive reasoning was likely to be elicited because of the presence of a rule in the input.

For input materials in their original formats see Appendix 3. Below, one selected text (from Session 1, First Conditional) with both kinds of input manipulation serves as an illustration of the data elicitation tool:

> **Monolingual group input, Session 1**
> We would like to have a nice time during the weekend, but it all depends on the weather. If the weather is good, we will get away for two days. If it is sunny, we'll go to the seaside and we'll spend the day on a beach. If it rains, we will definitely stay at home. We will organize a party if our friends agree to come.
>
> **Bilingual group input, Session 1**
> We would like to have a nice time during the weekend, but it all depends on the weather. If the weather is good (**jeśli będzie ładna pogoda**), we will get away (**wyjedziemy**) for two days. If it is sunny (**jeśli będzie słonecznie**), we'll go (**pojedziemy**) to the seaside and we'll spend (**spędzimy**) the day on a beach. If it rains (**jeśli będzie padać**), we will definitely stay (**zostaniemy**) at home. We will organize (**zorganizujemy**) a party if our friends agree (**jeśli nasi przyjaciele zgodzą się**) to come.

The kind of input enhancement utilized in this study was, in Leow's (2015a: 169) terms, 'conflated input enhancement,' because it incorporated, or 'conflated,' visual enhancement (in the form of bolded text) with other variables: a simple grammatical rule in English for the MG, and Polish translations of the target forms given in brackets for the BG. In Sharwood Smith's (2014: 39) terms, the input included both perceptual-visual and conceptual manipulation.

The overall length of the input texts was 308 (Session 1) and 311 (Session 2) words for the MG, and 401 (Session 1) and 404 (Session 2) words for the BG. As stated above, the MG input also contained a rule about the meaning and form of the target structure in English, which is not included in this word count. The instructions were formulated in Polish and asked the participants to carefully examine the material and try to understand the grammatical structure it illustrated. They were also instructed to try to formulate a rule about the meaning and form of the structure (BG), or to for-

mulate a rule in their own words (MG). The rule for each of the structures, formulated in the L2, was already present in the MG input; however, it was assumed that it could still pose a challenge for the MG participants to understand it and to use it as a consciousness-raising tool in the processing of the input. Therefore, the instruction for both groups included a request for formulating a rule reflecting their level of understanding of the patterns of the structures present in the enhanced input.

Apart from the input processing (IP) task, the TAPs were also collected over the two subsequent steps, namely the gap-fill (GF) task and the grammaticality judgment (GJ) post-test at each of the two Sessions.

5.5.4. Gap-fill tasks

Two gap-fill (GF) tasks were used in the study, one at each of the Sessions (i.e. one for the First Conditional, and one for the Passive Voice). Their function was two-fold. Firstly, they were used as a stimulus for elicitation of further mental processing, following the processing of the enhanced input. GF tasks were considered appropriate for this because doing them has, in principle, a stronger *problem-solving* orientation than merely being exposed to input; hence it was assumed that mental processes denoting at least some levels of consciousness would be stimulated. Tasks which include a problem-solving element are considered to be appropriate as elicitation in verbal reporting, because they provide a higher level of cognitive demands, preventing participants from relying on automatic responses to stimuli; these kinds of tasks also elicit high amounts of data on concurrent processing (Leow et al. 2014: 115). The other function that the GF tasks served in the study was to provide immediate verification of the levels of understanding of how the target structure works, reflected in the numbers of correct forms supplied by the participants. GF tasks are typically considered to be a measure of *explicit knowledge* of grammar (Purpura 2004: 265), which is defined by R. Ellis (2009: 38) as "structured knowledge of which learners are consciously aware." It was, therefore, assumed that a GF task would be an appropriate measure of the result of conscious mental operations stimulated at both the input processing (IP) and the gap-fill (GF) tasks. The dual function of the GF tasks in this study was, therefore, considered important in obtaining richer, more robust data. As noted by Bowles (2010: 118), it is appropriate to im-

plement the thinking aloud method in language assessment tasks, especially those that are designed to measure participants' explicit knowledge.

As was already mentioned, two GF tasks were used in the course of the study, one for each of the target structures. The format of these tasks was identical: they consisted of 12 gapped sentences, and the gaps were to be filled with the correct forms of verbs provided in brackets. The sentences were inspired by or adapted from the following sources: ELT-base.com, *Headway Intermediate* (1986) and *Headway Intermediate Second Edition* (1996) by Liz and John Soars (Oxford University Press). Additionally, in order to enhance comprehension, each sentence was illustrated with a simple schematic black-and-white picture. For the GF tasks used in the study see Appendix 4. The scoring procedures applied in the GF task in Session 1 and Session 2 are described in 5.6.1.

5.5.5. Grammaticality judgment tasks

Two untimed grammaticality judgment (GJ) tasks were used in the study, one for each target structure: one of them tested participants' knowledge of the form of the First Conditional, and the other one – of the Passive Voice. The two GJ tasks, one for each of the structures, are provided in Appendix 5. Each of the GJ tasks was administered twice: at a beginning of each Session, when it served as a pre-test, and at the end, when it was treated as a post-test. The pre-test and the post-test differed only in the order of the items, which was changed to assure greater reliability of the measurements.

The format of the two GJ tasks (one for Session 1 and the other – for Session 2) was identical. Each of the 12 items in the GJ tasks, in addition to the two *judgment options*, 'correct' and 'incorrect,' included so-called *confidence ratings*, i.e. four options for indicating how confident a student was with the decision they made. These ratings were: 'I don't know – I'm guessing,' 'I'm not sure,' 'I'm almost sure,' and 'I'm quite sure' (in the original format, they were provided in Polish). It was thus considered important to find out not only how *accurately* the participants evaluated the grammatical correctness of the items, but also how *confident* they were about their own judgments. If a person is guessing at an answer, or is not sure, but has an intuitive feel of the grammatical accuracy of a sentence, the judgment does not fully reflect explicit knowledge, which was at the core of the investigation (this issue was discussed in more detail in Chapter 4, section 4.2.6.). Therefore, the reason behind the employment of the confidence ratings procedure is that it gives a

GJ task higher levels of reliability and makes it a more sensitive tool. This procedure is increasingly advocated and employed by researchers investigating conscious learning processes and the explicit/implicit knowledge distinctions (e.g. Dienes 2012; Rebuschat et al. 2013). In this study, points were given for accurate judgments, and additional scoring was applied to the confidence ratings: both the correct judgments and the levels of confidence in making them were considered to be of relevance.

5.5.6. Grammatical sensitivity test

The main justification for the employment of a measure of an individual factor came from arguments formulated by researchers that SLA studies, including those on consciousness-related constructs (noticing, attention and awareness), need to include measures of participants' individual variation (e.g. Ahn 2014). Ahn (2014) suggests involving measurements of cognitive and affective variables in such studies in order to find out whether and how individual variation influences attentional processes. Grammatical sensitivity as a factor influencing learning L2 grammar was discussed in Chapter 2, section 2.1.4. For R. Ellis (2004: 251), the *Words in Sentences* test taps learners' explicit knowledge of grammar. According to him, "measuring learners' ability to analyze sentences grammatically (…) may provide an indication of the extent of their explicit knowledge." For these reasons, a language aptitude test, and more specifically, its component related to grammatical aptitude, was considered to be an appropriate individual variation measurement to include in the study.

The grammatical sensitivity test used in the present study was, therefore, the *Words in Sentences* (*Wyrazy w zdaniach*) component (part 5) of the Polish adaptation of the *Modern Language Aptitude Test*, *Test Uzdolnień do Nauki Języka Angielskiego (TUNJO)* by Rysiewicz (2011). The test was designed, just like its original English version, to measure the ability to understand the grammatical functions of words and phrases in sentences. According to Rysiewicz (2011), this component of TUNJO measures learners' grammatical sensitivity, while another component, *Artificial Language*, which does not exist in the MLAT, more specifically taps into inductive learning ability.

Words in Sentences (*Wyrazy w zdaniach*), the test which was used in the present study, consisted of 23 model sentences, in each of which a word or phrase was underlined. The participants' task was to indicate a

word or phrase (out of four options) which performed the same grammatical function in a corresponding sentence. The full format of the test is not displayed in the present work due to copyright constraints, however, a sample sentence taken from the test will illustrate its structure:

Jego żona kupiła **sobie** nowy kapelusz.
Dlaczego dzisiaj nie powiesz mi o sobie więcej, niż wczoraj?
A B C D

In this test, a learner indicates which word performs the same function in the second sentence as the underlined word in the first sentence. In this example, the correct answer is thus "C" (Rysiewicz 2011).

5.5.7. Interview

A debriefing session was conducted in the form of an interview with the participants. At this stage, an exploratory approach to data collection (Gilgun 2014) was adopted, with the purpose of documenting the subjective opinions and experiences of the respondents. Interviews are a frequently used method in SLA and educational research, particularly suitable for eliciting information on participants' opinions, attitudes and feelings about aspects of learning and teaching, such as learning and teaching procedures, resources and materials (McKay 2006: 51; Dörnyei 2007; Wilczyńska and Michońska-Stadnik 2010: 159). The reason for using an interview in the present study was two-fold. Firstly, it was expected to reveal a deeper perspective on the TAP data obtained through the IP task and to achieve a deeper understanding of the strategies applied in the grammar learning tasks (IP, GF and GJ), with special regard to the role of the L1 in processing L2 input. Complementing TAP data with data elicited through other methods (questionnaires and interviews being the most widely used ones) is a procedure recommended in the literature on conducting verbal report studies (e.g. Kasper 1998; Leow et al. 2014). The other aim of the interview was to elicit information about the participants' beliefs and practices regarding their own learning of English grammar, with special regard to the role of their L1, Polish.

The format of the interview was *semi-structured*, which means that while the primary focus was on a set of questions predetermined by the researcher, other questions concerning topics that occurred during the

conversations were incorporated into the interview as well. According to experts in social, psychological and educational research (e.g. Brinkmann 2014: 286; Dörnyei 2007; Wilczyńska and Michońska-Stadnik 2010: 159), this type of interview is the most widely used, because it allows flexibility in adjusting to what is most important for the interviewees, highlighting their crucial role in generating the data. The debriefing interviews conducted as part of the present study were based on five core questions, modified and complemented by other clues according to the flow of the conversations. The core questions were the following:

- Please look at the texts once again. What were you paying attention to when working on them? What guided your reasoning?
- And now, look at another kind of material, very similar to this one. Which of the two types of material do you prefer? Why?
- Do you have your favorite ways of learning English grammar? What are they?
- When learning English grammar, do you refer to the grammar of Polish?
- What is your opinion about comparing grammatical structures in a foreign and in the native language?

Following advice by Friedman (2012: 188), the core questions performed the function of a guide rather than a fixed scheme; therefore, their order, the depth of probing into a given issue, and the number of further questions varied according to a given interview. Because of the participants' low proficiency in English, the language of the interviews was Polish. It would not have been possible for the participants to express complex messages, as was required within the interview procedure, in English. For the five core questions in their original form, see Appendix 6.

5.6. Research administration

The specific procedures for the application of the data collection methods briefly outlined in the previous section will be explained here. The description will outline the schedule of the sessions held with the participants, as well as the sequence of the implementation of the specific tasks within the data elicitation process.

5.6.1. Pilot study

Once the research plan was prepared, the actual data elicitation was proceeded by a pilot study, conducted with two volunteer participants. They were first year students of Adam Mickiewicz University, both aged 20, and at an intermediate level of proficiency in English. This means that they were about the same age as the participants of the proper study, but their proficiency in English was slightly higher. The main aim of a pilot study, or a 'trial run,' is to verify the feasibility of the planned research procedures and detect any unanticipated problems that may arise (Ary, Jacobs and Sorensen 2010: 95), and that was precisely the researcher's motivation in this case. Specifically, the pilot study aimed to verify the clarity of instructions and the effectiveness of the tasks in eliciting verbal reporting, as well as to measure the time needed to complete the tasks. As a result, the pilot study allowed the researcher to organize and conduct the proper study efficiently and smoothly.

Mackey and Gass (2005: 43) note that a pilot study often makes it possible to evaluate the usefulness of the planned methods and revise them if necessary, before they are implemented in the proper data collection. In the case of the present study, although the general scheme of the research was confirmed to be adequate, the pilot study results led to the implementation of two changes in the research procedures. One of them was connected with the inclusion of the input processing (IP) task in the TAP procedure; initially, getting familiar with the structures through reading the input texts was intended to be performed silently by the participants. The feedback received by the two participants in the pilot study, however, revealed that a considerable amount of relevant mental processing took place during the performance of this task, and it would have been a serious oversight if this source of data had been ignored. The other modification concerned adding an optional recapitulation stage to the verbal report, after performing the IP and GF tasks, while the participants still had access to the input material. The pilot study showed a need for a final confirmation of the participants' familiarity with the structures before the input was removed from them and before they were asked to proceed to the final, post-test GJ task. The recapitulation stage, as part of the GF task, was thus added to the procedures as an optional procedure for those students who expressed the need to look at the input texts again before they were taken away.

The pilot study, although involving only two participants, already initiated the identification of mental processing strategies that emerged in the think-aloud protocols. On its basis, a number of such strategies were listed and they served as a foundation for the compilation of the final strategy list, presented in a later section of this chapter.

5.6.2. Data elicitation procedures

The process of eliciting the research data, which started a few days after the research sample was recruited, lasted for over four weeks. The procedure consisted in conducting two individual sessions with each of the participants; altogether, 60 sessions took place, each lasting for about 60 minutes. The meetings were held in the premises of the Faculty of English, Adam Mickiewicz University in Poznań, and appointments were made via email. The first individual session took place on 28th February, and the last one on 30th March 2015. Each of the participants met with the researcher twice, with a 6-10-day interval between the two sessions, each of which was devoted to a different grammatical structure (the First Conditional in Session 1 and the Passive Voice in Session 2). Both sessions had a similar structure, which is presented schematically in Figure 3.

Filling in the demographic questionnaire (described in section 5.4.1.) by the participants was the first step in Session 1. Next, participants were briefly informed about the main aim of the study, and proceeded to do the untimed pre-test GJ task with confidence ratings (Step 2 in Session 1, see Figure 3). As can be seen in Figure 3, a GJ task was administered twice in each session: at the beginning, when it served as a pre-test and did not incur the TAP procedure, and after the processing of the enhanced input (IP task) and doing the GF task, as a post-test, when it was accompanied by the TAP procedure (pre-test GJ – IP – GF – post-test GJ).

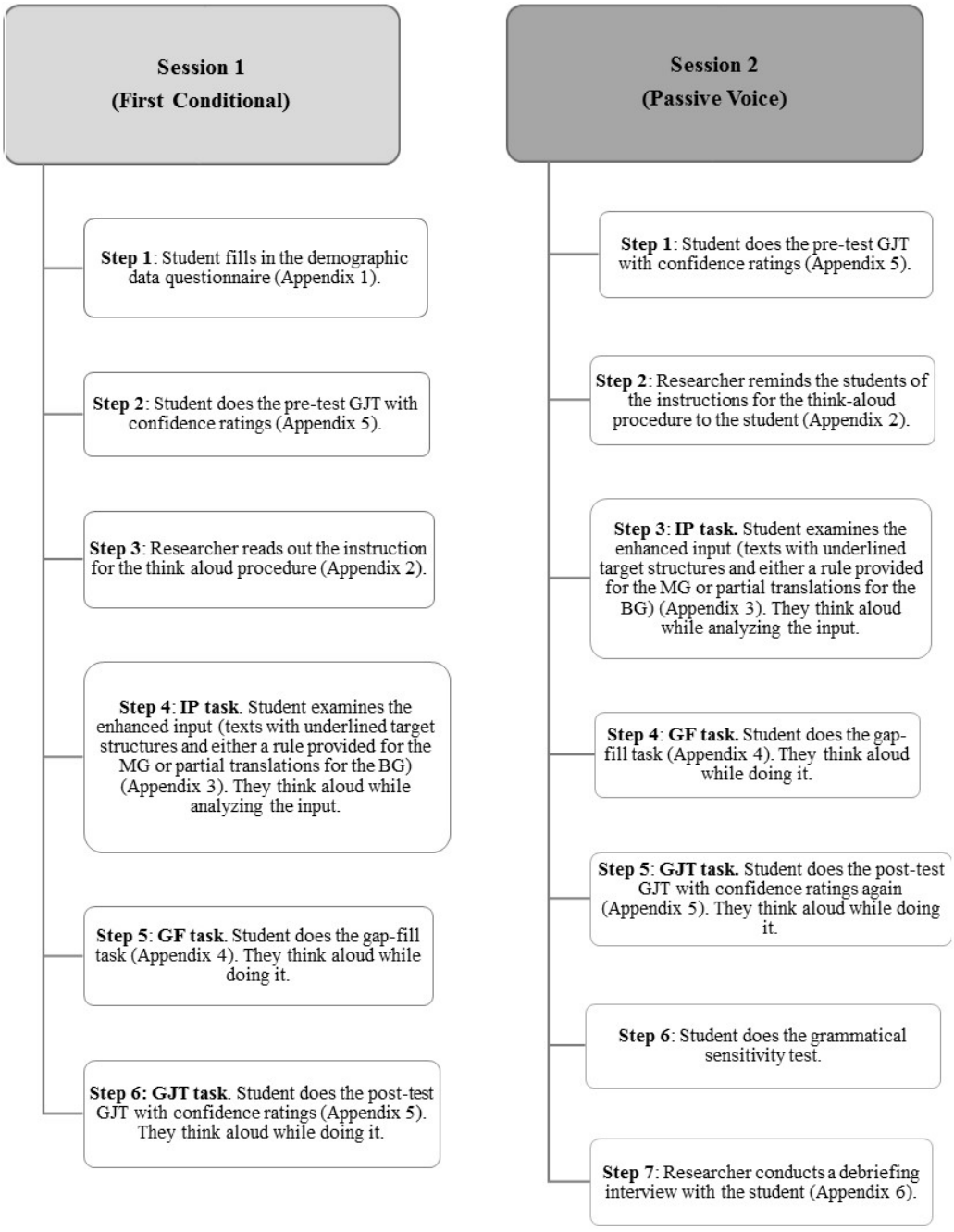

Figure 3. Schematic presentation of the procedures involved in the study for both groups (MG and BG).

The completion of the pre-test untimed GJ task by the participant in each session was followed by the researcher's reading out the instruction (Step 3 in Session 1 and Step 2 in Session 2, as can be seen in Figure 3) for the concurrent verbal report which was about to start. In Session 1, the instruction included a sample mathematical task performed aloud by the researcher as an example of what it means to think aloud, followed by another example performed by the study participant. The mathematical tasks were: "How much is 24 times 32?" (as the example demonstrated by the researcher), and "How much is 26 times 25?" (as the task to be solved while thinking aloud by the participant). Such procedures are generally recommended in the literature on conducting verbal reports, because they illustrate the required procedure and provide an opportunity for a warm-up trial (Kasper 1998; van Someren, Barnard and Sandberg 1994), and this was clearly appreciated by the participants in the present study, most of whom expressed an understanding of what was expected of them after performing the multiplication puzzle. Providing oral instructions for a TAP is a basic requirement in any research; in the present study, a clear explanation of what was required was a necessity also because none of the participants were familiar with the think-aloud method. After the instruction was read and the example tasks were performed, the participants were invited to ask any questions they still might have about the think-aloud procedure, and were asked to sign a written consent stating that they agreed to participate in the study, to have their performance audio-recorded, and to allow the researcher to use the elicited data for research purposes. The consent also contained an assurance that the participants' anonymity would be preserved. The instruction was delivered in the participants' L1, that is Polish. After the instructions had been given and the consent had been signed, the researcher turned on the voice recording application on her smartphone and over the following steps (Steps 4, 5 and 6 in Session 1, and Steps 3, 4 and 5 in Session 2, see Figure 3) each participant's performance was recorded.

The input processing (IP) Task (Step 4 in Session 1 and Step 3 in Session 2, see Figure 3) was a crucial step in the study because at this stage the differentiation between the groups was introduced, and the monolingual and bilingual input enhancements were considered to be the most important variable in the study (the specific kinds of enhancement used are explained in section 5.5.3.). At this step, the assignment of the participants to the particular treatment conditions took place. The researcher as-

signed them to either the monolingual group (MG) or the bilingual group (BG) in a random manner: each participant assigned to the MG was followed by a participant assigned to the BG. According to the group they were assigned to, they were given either the MG or the BG input material to work on. The participants were instructed to think aloud while processing the input, although they were not instructed to read the text aloud. If they wanted to read the input text silently, they were allowed to do so, as it was considered that imposing a strict procedure for performing the task could negatively influence the participants' mental processing. Three out of the 30 participants chose to read the texts silently, because this helped them focus on what they were reading. In such a case, they only verbalized their thoughts about the input after familiarizing themselves with the texts or portions of it.

While performing the GF task (Step 5 in Session 1 and Step 4 in Session 2, see Figure 3), the participants were encouraged to refer to the input from the previous IP task. It was assumed that this procedure would shed light on how they processed the linguistic information included in the input with the aim of making sense of the form and meaning of the target structures. It was also expected that the level of task accomplishment would reveal whether and to what extent the input was helpful in understanding the form and meaning of the structures and in making connections between them. As was mentioned above (in section 5.5.4.), the problem-solving character of the GF task was intended to stimulate more relevant mental processing, reflected in the elicited TAP data. Therefore, the GF task also constituted a vital part of the TAP procedure. Of course, as could be expected, there was also noteworthy individual variation with respect to the duration and complexity of the reports; it was not, however, as considerable as in the previous IP task.

In the following step (Step 6 in Session 1 and Step 5 in Session 2), the materials containing the input texts and the GF tasks were removed and the students did the post-test untimed GJ task with confidence ratings, in exactly the same form as at the beginning of each Session. The sentences were exactly the same, only their order was changed. This time, however, the participants were asked to think aloud while doing the GJ task and, as in the previous two steps, their performance was recorded. The order of the tasks within the study procedure was motivated, apart from other factors, by the fact that the GJ task served as a pre- and post-test; it had to be applied at the very beginning of the data collection sequence and at the

end of the think-aloud procedure. After the completion of the post-test GJ task by a student, the voice recording device was turned off.

The post-test GJ task was the final step in Session 1, while in Session 2 it was followed by two other procedures. One of them was the grammatical sensitivity test (*Słowa w zdaniach*, described in section 5.5.6.). In Figure 3, it is listed as Step 6 in Session 2. Its administration was preceded by a clear instruction read out by the researcher. The instruction was included in the test and was an integral part of the test; apart from a detailed clarification of the procedure, it also contained two example sentences with an explanation why a particular answer was correct. The participants did the test silently (two of them chose to partly think aloud to themselves, but because this step was not included in the think-aloud procedure, their performance was not recorded). The instruction required the participants to examine each of the clues and mark their answers on a separate answer sheet. The test was untimed; the participants were allowed to spend as much time on doing it as they wished, and to return to any items they were not sure about.

Eventually, an interview (Step 7, Session 2) conducted with each of the participants was the final procedure of the study. The interviews were based on five core questions, but, depending on the flow of the interview, additional questions were asked to elaborate on certain issues or clarify any doubts. The duration of the interviews ranged from between 8 and 14 minutes.

All the materials filled in by each participant in both Sessions were coded with a symbol given to a particular participant and placed in a separate file. The codes reflected the number of the session (Session 1 or Session 2) and the kind of input the participants were exposed to (bilingual or monolingual). Hence, for example, the code 1B3 indicated data elicited in Session 1 from BG participant number 3, and 2M10 denoted Session 2 data produced by MG participant number 10. These symbols will be used in the sections devoted to the presentation of the research data in Chapter 6.

5.7. Data analysis procedures

The specific procedures used in the scoring of the test results and in analyzing both quantitative and qualitative data elicited in the course of the study, with the application of the methods and tools described in the preceding section, will be outlined here.

5.7.1. Test scoring procedures

In the GF task in Session 1, the participants used the base forms of verbs given in brackets to make correct sentences in the First Conditional structure (see Appendix 4). In each sentence there were two gaps to fill (the main clause and the if-clause), and the maximum number of points to score for each sentence was 2 (i.e. max. 24 points for the whole task). The main purpose underlying the design of the scoring procedure was to test the participants' understanding of how the structure works, based on the preceding input processing, because the GF task was assumed to be a measure of participants' conscious operations rather than a performance achievement test of learning. Therefore, points were assigned if the correct tenses with the singular/plural distinction were provided. One point was awarded for correct completion of each of the gaps. No half-points were given for partly correct sentences, and spelling mistakes were disregarded.

A similar scoring procedure was followed in the GF task in Session 2 (the Passive Voice), with each properly filled form worth 2 points, one for the proper form of the verb 'to be' and one for the verb in the past participle form. However, a point was granted even if an incorrect form of the verb was provided (e.g. **builded*, **finded*), because a participant's awareness of a different/changed/-ed verb form needed in this structure was evaluated rather than their knowledge of irregular past participle forms. It should be recalled here, as was already stated in section 5.5.4., that the GF tasks were intended to measure the participants' explicit knowledge developed as a result of processing the manipulated input.

In evaluating the GJ tasks, both *accuracy rates* (whether a participant appropriately judged a sentence as either 'correct' or 'incorrect') and *confidence ratings* (a participant's evaluation of how confident they were about the grammaticality of the sentences) were taken into account in the scoring procedure. In this way, two sets of scores were obtained for each GJ task: one for the accuracy of the judgment, and one for the confidence rating. The scoring of the accuracy of the participants' judgments was simple and straightforward: one point was given for a correct accuracy judgment ('correct' or 'incorrect'). Confidence ratings were evaluated in relation to the accuracy of the judgment. Namely, if a correct accuracy judgment was accompanied with a confidence rating denoting a participant's confidence about his or her judgment (indicated by marking either

the 'I am almost sure' or the 'I am quite sure' option), a point was scored for each of these measures. If the judgment was correct, but at the same time the confidence about it was low (indicated by either 'I don't know – I am guessing' or 'I am not sure'), only one point (for the accuracy of the judgment) was scored. This scoring procedure can be summed up in the following manner:

Correct judgment + high confidence = 1 point for accuracy + 1 point for confidence
Correct judgment + low confidence = 1 point for accuracy + 0 points for confidence
Incorrect judgment + high confidence = 0 points for accuracy + 0 points for confidence
Incorrect judgment + low confidence = 0 points for accuracy + 0 points for confidence

Therefore, the total score for each of the GJ tasks (serving as pre-tests and post-tests) was 12 for accuracy and 12 for confidence. Apart from the calculations of these scores, calculations of gain scores (differences between the pre- and post-test scores in accuracy and confidence) were also performed and subjected to further statistical analyses.

Finally, the grammatical sensitivity test results were scored according to the answer sheet provided together with the test. One point was given for a correct answer in each of the 23 items; thus, the maximum number of points to be scored for this test was 23.

5.7.2. TAP coding

The coding of the strategies identified in the TAPs produced by the participants was a crucial procedure for the subsequent analyses of the data obtained in the study. As was mentioned above, the initial step in the process of coding was taken at the time of the pilot study, when a preliminary list of mental strategies used by the two participants was created. However, this process was developmental and emergent, with the strategy identification and code assignment extending over the time taken for multiple readings of the TAP transcripts. These procedures resulted in the compilation of a list of mental strategies identified in the TAPs produced by the participants.

The identified strategies fell within three broad categories: *cognitive*, *metacognitive*, and *affective*, in relation to existing and well-established general categorization schemes used in research on learning strategies. For example, Oxford's (1990) typology, which served as an important inspiration for drawing up sets of categories within this study, distinguishes be-

tween direct and indirect strategies, with three broad categories within each of these groups. Direct strategies include memory, cognitive, and compensation strategies, while indirect strategies are metacognitive, affective, and social. It had been predicted that in a verbal protocol procedure aimed at investigating learners' conscious processing of grammatical structures, three of these strategy types were likely to appear: cognitive, metacognitive, and affective. Cognitive strategies, following Oxford's (1990: 19) general definition, were expected to relate to processes such as consciously analyzing the material, trying to understand the form and meaning of structures, using various resources to understand input, translation, recognizing patterns, etc. Within metacognitive strategies, arranging, planning and evaluating one's performance were expected (Oxford 1990: 20), while affective strategies were assumed to be connected with controlling anxiety levels, using humor, expressing feelings, etc. (Oxford 1990: 21). The remaining types of strategies from Oxford's (1990) taxonomy were not expected to be applied by participants in the present study because of the specification of the research objectives and the performed tasks. For example, memory and compensation strategies were not considered to be applicable because none of the tasks required remembering the processed material or compensating for a lack of knowledge in communicative situations; similarly, social strategies were neglected in the categories framework because think aloud tasks are performed individually, focus on internal processing and do not involve any kind of interaction with the researcher.

Within the three broad categories of strategies, a number of more specific strategy types were identified in the analysis of the transcripts of the TAPs produced by the participants. The preliminary coding scheme which emerged after an initial analysis of the transcripts was further refined through subsequent re-reading of the transcripts and more detailed analyses of the elicited research material. Following this, certain subcategories were introduced, each of them including specific strategies. As a result of several refinements and modifications, a final set of 36 specific strategies was developed, grouped into eight subcategories. A detailed account of the types of strategies that were used by the study participants together with the codes assigned to them is presented in Table 14.

Table 14. The list of all strategies identified in the TAPs.

COGNITIVE STRATEGIES		
Code	Full name	Description
Strategies involving reading aloud		
SRA_ENG	Selective reading aloud in English	Student reads selected parts of text (parts of sentences, phrases) in English.
SRA_POL	Selective reading aloud in Polish	Student reads only selected parts of the Polish translations provided in brackets in the input.
RA_ENG	Reading aloud English text	Student reads the English text with no selection or modification (e.g. reads full sentences or longer portions of the text).
RA_POL	Reading aloud Polish text	Student reads the Polish translations given in the text in brackets with no selection or modification.
Strategies involving repetition		
RW_ENG	Repeating words in English	Student repeats/rehearses selected words from the input in English.
RW_POL	Repeating words in Polish	Student repeats/rehearses only selected Polish words taken out of the Polish translations, either from the input or provided by the student himself/herself.
RR	Rereading	Student reads the text or parts of it again.
RT	Repeated translation	Student repeats the translation of a given part of the text.
Strategies involving reference to the L1		
OT	Own translation	Student provides his or her own translation of parts of texts; the translation differs from the one given in brackets.
JT	Just translation	Student provides just the Polish translation of the text, without reading aloud the English text.
COMP_Eng_Pol	Comparing English and Polish forms	Student makes comparisons between English and Polish forms.
COMP_POL	Comparing Polish translations	Student makes comparisons between Polish translations.
CS	Code switching	Student mixes English and Polish in the same thought group or phrase.
Strategies involving reasoning and analysis		
INT_MEAN	Interpreting meaning	Student interprets the general meaning of a text, focusing on the message conveyed in it.
COMP_ENG	Comparing English forms	Student makes comparisons between English forms.

INF_FORM	Inferences about a form	Student infers information about the form of structures.
INF_MEAN	Inferences about meaning	Student infers information about the meaning of structures.
MLR	Metalinguistic reasoning	Student refers to the linguistic system in his or her reasoning, often using terminology.
INTU	Intuitive feeling	Student applies his or her intuition to complete a task.
ATT_FORM	Paying attention to the form	Student pays attention to the form without drawing any inferences.
SOU_TH	Sounds indicating thinking	Student makes a sound (e.g. "hmm") which indicates mental processing.
Strategies involving reference to information		
REF	Referring to other parts of the input	Student refers to parts of the input encountered earlier.
PREV_KN	Referring to previous knowledge	Student makes use of his or her previous knowledge in processing the input.
REF_RULE	Referring to a rule	Student makes references to a rule in the processing of a given part of the input text or sentences in tasks.
METACOGNITIVE STRATEGIES		
Strategies involving monitoring		
MAN	Managing text processing	Student signals a need to move to another example, or postponing the processing of a given part of a text, or a need to return to a previous sentence, etc.
EXPL	Explaining one's way of processing the text	Student provides an explanation of his or her line of reasoning and the strategies he or she is using.
Strategies involving evaluation		
CONF	Confirmation	Student expresses a confirmation of his or her reasoning.
DOUBT	Doubt	Student expresses doubt about his or her reasoning.
UND	Understanding	Student states understanding.
NO_UND	Lack of understanding	Student states a lack of understanding.
COR	Correction	Student corrects his or her understanding.
EVAL	Evaluation	Student evaluates the difficulty or easiness of the input or of the processing.

AFFECTIVE STRATEGIES		
HUM	Humor	Student reacts in a humorous way, e.g. laughter, joke.
EMOT_POS	Positive emotions	Student signals a positive emotional response to the input or task (sighing, making noises, exclamations, etc.).
EMOT_NEG	Negative emotions	Student signals a negative emotional response to the input or task (sighing, making noises, exclamations, etc.).
COM	Comment	Student makes a non-metalinguistic comment on the input or his/her processing.

As can be seen, most of the strategies, 24, were distinguished within the category of cognitive strategies. These strategies were considered to be most relevant within the scope of the present study. They were classified into five subcategories: 'strategies involving reading aloud,' 'strategies involving repetition,' 'strategies involving reference to the L1,' 'strategies involving reasoning and analysis,' and 'strategies involving reference to information.' Within the category of metacognitive strategies, eight specific strategies were distinguished, classified into two subcategories, 'strategies involving monitoring' and 'strategies involving evaluation.' No subcategories were introduced within the affective strategies category, which comprised four specific strategies.

Assigning codes to strategies and grouping them into subcategories was a task of utmost significance and at the same time, of great difficulty. The analysis of the TAPs started with a detailed transcription of the audio recordings. The verbalizations were parsed, and each thought group (separated by pauses) was placed in a separate line in the transcription. The transcription was as accurate as possible in recording anything the participants said; longer pauses were also recorded (by putting the sign (…) in the transcription), as well as para-verbal signals (such as "uhm", laughter, marked voice pitch, etc.), which were marked in the transcriptions as part of the utterances produced by the participants. Next, the strategies that appeared in the transcripts were identified and coded with acronyms. In the transcripts, space was also provided for additional comments that the coder made during the process of coding and analyzing the data. The following three brief excerpts from a transcription of one of the protocols illustrate the coding procedure applied in the study:

Transcription	Strategy codes	Comments
(Protocol 1B11)		
Ann podejrzewam że to będzie Ania	INF_MEAN	Translates even the name
Myśli że zwiedzi bardzo interesujące miejsca jeśli będzie miała dość pieniędzy w lato	JT	
I tu jest she will visit	ATT_FORM	
Czyli mówi o przyszłości że zwiedzi te miejsca	INF_MEAN	
Jeśli będzie miała if she has	COMP_ENG_POL	
To też jest o przyszłości	INF_MEAN	
Jeśli będzie miała wystarczająco dużo pieniędzy	JT	
Mmm	SOU_TH	
(Protocol 2M10)		
Ale nie jestem pewna jak tutaj z tym to be	DOUBT	
It is tak tu jest	REF	
I I I (singing)	RW EMOT_POS	Sings joyfully/humorously
Jak się mówi o sobie	DOUBT	
Nigdzie tu nie ma takiej formy o sobie samym	REF	
I was pasuje mi ale to jakby nie bardzo	INTU DOUBT	
(laughter) I was czy he was	DOUBT EMOT_POS	
(Protocol 2B4)		
The letters listy are delivered	OT INF_FORM	An individual L1 word inserted in the sentence
Tak jak removed	COMP_ENG	
Delivered at eight	SRA_ENG	
Są dostarczane	RT	
Letters are delivered at eight	RR	
This hotel build two years ago	RA_ENG	
Was was was was (laughter)	HUM RW_ENG	
Was build	INF_FORM	Doesn't know the irreg form
Build pozostaje tak samo	PREV_KN	Not quite right

It should be noted that the categorizing and coding procedures were discussed with another researcher (henceforth, co-researcher A) at the beginning of the TAP analysis process. Two TAPs which had been tentatively coded by the researcher served as the basis for this initial inter-rater discussion, which resulted in a final categorization of the strategies and the assumption of a more unified coding scheme. When the process of coding all protocols was completed, still another researcher (co-researcher B) performed her own analysis of six randomly selected protocols (which constituted 10% of the data) in order to establish inter-rater reliability. A debriefing session followed the analysis of three protocols by co-researcher B, in which 90% reliability was established. After introducing corrections, derived from the feedback received from co-researcher B, the remaining three protocols were analyzed separately by the main researcher and co-researcher B, and this time the inter-rater agreement reached 100%. The process of transcribing, analyzing and coding the protocols lasted for five months.

The strategies identified and coded in the TAPs produced by the participants formed the basis for the performance of subsequent analyses of both quantitative and qualitative kinds. The nature of these analyses, conducted on data elicited through TAPs and other instruments, will be explained in the following sections.

5.7.3. Quantitative data analyses

The following data collection tools yielded quantitative data: TAPs (in the form of the frequencies of the mental processing strategies), the GF task, the pre-test GJ task, the post-test GJ task with confidence ratings, and the grammatical sensitivity test. All statistical analyses of the quantitative data were conducted on the Statistical Package for the Social Sciences (SPSS, Version 23), and the alpha value was set at 0.05 for statistical significance in all analyses.

The parametric statistical tests applied in the study – a repeated-measures ANOVA, an independent-samples t-test, and Pearson's correlation – are considered to be appropriate for use with small samples, according to articles and manuals on research methodology (e.g. Brown 1988: 165; Henning 1986: 706; Larson-Hall 2010: 114). Dörnyei (2007: 99) gives a 'rule of thumb' according to which the minimum number of participants in correlational research is 30, and in comparative and exper-

imental procedures – at least 15 in a group. In this respect, the sample size in the present study ($N = 30$, $n = 15$ in each group) appeared to be sufficient for these procedures. Additionally, it is worth highlighting that all quantitative data sets were first checked for normal distribution before any statistical tests were applied. The procedures used in this verification were a Shapiro-Wilk test and visual inspection of the data distribution in the form of histograms, normal Q-Q plots and box plots. These are standard procedures in checking whether research data meet the criteria of normal distribution or not (Larson-Hall 2010; Field 2009). The two-way repeated measures ANOVA and a t-test for independent samples were used to analyze normally distributed data, and the Mann-Whitney U-test and the Wilcoxon Signed Ranks Test were the non-parametric procedures applied in the analysis of data which were non-normally distributed.

Although the TAPs produced qualitative data (i.e. large amounts of text), they underwent both qualitative and quantitative analyses, as it is common practice in research to quantify qualitative data (Mackey and Gass 2015; Silverman 2011). According to Mackey and Gass (2015: 182), analyses performed on qualitative data often make use of "the sorts of numbers and statistics that are usually found in quantitative research" because such procedures facilitate the identification of patterns and regularities, and make reporting research findings easier and more concise. According to these guidelines, the TAP data in the form of the reported strategies were then tallied and quantified for subsequent quantitative and qualitative analyses. Within the quantitative analysis, the strategies were counted and compared across their categories and types. These categories involved the previously discussed cognitive, metacognitive and affective strategy types, and the comparison of their numbers across groups of participants and the frequencies of their application across the tasks (IP, GF and GJ) yielded important findings for the study. Moreover, within the quantitative strand, the strategies within the assigned code categories were subsequently analyzed in relation to other variables, such as the participants' grammatical sensitivity test scores. In order to compare between-group strategy use in the sessions (Session 1 and Session 2) and in the tasks (IP, GF and GJ), a two-way repeated measures ANOVA was conducted. The analysis was intended to reveal whether there were significant differences between the MG and BG strategy use in the sessions and tasks. When the ANOVA revealed a statistical effect ($p < .05$), a post-hoc test using the Bonferroni correction was applied.

The between-group differences in the use of strategies were further analyzed using a series of independent-samples t-tests. As explained by Larson-Hall (2010: 136), a t-test is a standard statistical procedure used to find out "whether the differences are large enough that the two groups can be said to belong to two different populations." Therefore, these tests were used to investigate the nature of the relationships between the variables (i.e. in what way the frequencies of strategy use differed for both groups). To obtain information about the strength of these differences, effect sizes (Cohen's d or Pearson's r) were also calculated. According to Larson-Hall (2010: 115), "Cohen's d measures the difference between two independent sample means, and expresses how large the difference is in standard deviations." She recommends using this measure in addition to t-tests to complement the measurements, as effect size values give information about the actual differences or relationships between variables. Larson-Hall (2010) suggests using the d family of effect sizes for t-tests (p. 157), and the r family of effect sizes for non-parametric statistics (p. 377). The values of effect sizes are usually interpreted in the following way: $d = .20$ indicates a small effect, $d = .50$ indicates a medium effect, and $d = .80$ – a large effect; for the r family of effect sizes, $r = .10$ means small, $r = .30$ means medium, and $r = .50$ indicates a large effect size (Cohen 1988: 40, 79). These conventional ways of interpreting effect size levels were applied in the quantitative analyses in the present study.

Another classification within the strategies, introduced in order to address the study aims, concerned the depth of processing involved in the application of certain strategies. The depth of mental processing is a frequent concern of researchers conducting studies on attention and consciousness (e.g. Craik and Tulving 1975; Qi and Lapkin 2001), and a relationship between depth of processing and intake (e.g. Gass 1988), and between a depth of processing and a high degree of consciousness (Craik 2002) has been confirmed by previous research. One of the merits of the TAP methodology is that it allows access not only to mental processes applied by the participants, but it can also give an insight into the varying depths of their mental operations. Therefore, in some studies, a distinction has been made among strategies that indicate varied levels of mental involvement with a task. This procedure is consistent with the process-orientation to researching consciousness because it investigated concepts "associated with particular sets of on-line processes and varying degrees of consciousness" (VanPatten 1994: 28). This enables researchers to draw

conclusions about different issues related to cognitive processes, such as perception, noticing, attention, awareness, consciousness, working memory, and other related constructs. For example, Leow et al. (2008) and Morgan-Short, Heil et al. (2012) in their TA-based studies divided the strategies used by their study participants into three levels according to the depth of processing: at Level 1, participants highlighted the target forms, but did not display any sign of mental processing of these forms; Level 2 strategies were associated with "minimally processing" the forms and involved: pronouncing the form, making a pause immediately before or immediately after the target form, commenting in a non-metalinguistic manner about the form; Level 3 strategies involved processing the target forms "beyond a minimal level" and was represented, for example, by making metalinguistic comments about the target form and translating it into the L1. Hsieh, Moreno and Leow (2015) coded TAP data according to three levels of awareness: (1) noticing, (2) reporting, and (3) understanding. In another study, Calderón (2013) divided the strategies in offline verbal reports into low level and high level descriptors of depth of processing. Descriptors of low level processing included, for example, "referring back to text (general)", "saying they don't know what it means", "expressing a feeling or intuition", and "wondering what the difference is between target items", while high level processing was signaled by strategies such as: "forming/confirming a (correct) hypothesis", "referring back to specific target in text", "saying they choose target as an option", and "saying correct answer makes sense" (Calderón 2013: 112). Addressing the considerations resulting from the theory of SLA and previous mental processing studies, the 24 cognitive strategies which were identified in the present study were divided into two groups according to the depth of processing they were assumed to stimulate. In this way, two subcategories, *lower-level processing strategies* and *higher-level processing strategies*, were created. The specific assignment of particular strategies to these groups, together with the quantitative analyses of their frequencies and applications across groups and tasks, is presented in Chapter 6, section 6.2.

The two GF tasks (one in Session 1 and one in Session 2), apart from providing input for processing within the TAP scheme, also yielded quantitative data reflecting the learning effects, assumingly resulting from the conscious processing of the input. Although there was no pre-test, the participants' accuracy achievements in the form of the task scores were cal-

culated and the between-group differences were verified with the use of descriptive statistics (mean and standard deviation values) and independent-samples t-tests. Effect sizes (Cohen's d) were also established.

The pre- and post-test GJ task scores (for judgment accuracy and confidence levels), together with the gain scores, were calculated separately for the sessions and groups. The data were subjected to non-parametric statistical procedures. Descriptive statistics in the form of median ranks were obtained, and a Wilcoxon Signed Ranks Test and a Mann-Whitney U were performed to compare within-group and between-group differences, respectively.

Finally, the grammatical sensitivity test scores were calculated and were subsequently correlated with participants' scores obtained in other tasks: with the numbers of metacognitive and cognitive strategies identified in the TAPs, with the numbers of lower-level and higher-level processing strategies, and with the GF and post-test GJ task scores. Correlations were established through running a Pearson correlation test.

5.7.4. Qualitative data analyses

Publications on research methodology stress that the process of analyzing qualitative data "involves reducing and organizing the data, synthesizing, searching for significant patterns, and discovering what is important" (Ary, Jacobs and Sorensen 2010: 481). Precisely these procedures were applied in the analysis of the qualitative data elicited in the course of the present study. The qualitative data were elicited through the collection of the TAPs and through the debriefing interviews. Their analysis started with a transcription of the audio-recorded data: verbal reports and interviews.

In the qualitative analysis performed on the data, the distinctions between the sessions and the three tasks (IP, GF and GJ) were no longer maintained. For this analysis, the data were treated collectively, as the main aim of the qualitative stage of the analyses was to complement the quantitative results with examples of quotations from the verbal reports produced by participants and highlight certain phenomena observed while they were processing the target grammatical structures. In order to do this, the TAPs were analyzed again with the purpose of detecting instances of verbalizations illustrating certain recurring themes and indicating relevant mental processing which revealed conscious processing of the L2 materi-

al. The qualitative data thus underwent a *content analysis*, "applied to establish patterns of the data," whose main characteristic feature is that the "categories used in content analysis are not predetermined but are derived inductively from the data analysed" (Dörnyei 2007: 245). Therefore, the qualitative analysis was separate from the coding scheme used in quantitative analyses, and the set of themes that emerged in the content analysis was closely related to one of the research questions, RQ2, connected with the functions of the L1 in stimulating participants' conscious mental operations in processing the target L2 grammar over the three tasks (IP, GF and GJ). Therefore, the multiple re-readings of the TAP transcriptions resulted in an identification of the following themes within the verbal reports: (1) students' own translations, (2) L1 use to highlight the form-meaning connections, (3) comparing L1 and L2 forms, (4) successful and unsuccessful inferencing, (5) L1 for seeking confirmation, and (6) rule formulation and processing. For each of these themes, relevant quotations were coded and, subsequently, selected for inclusion in the description as illustrations of the mental processes. The qualitative data are presented in section 6.3. in Chapter 6.

The same procedure, based on qualitative content analysis principles, was applied in analyzing the interviews. First, the 30 interviews were transcribed, which was followed by multiple readings of the transcripts by the researcher, during which an initial coding of the data was devised. The data were coded according to the following four categories corresponding to the research questions: (1) perceptions about the usefulness of the enhancement, (2) preferences for L1-based or L2-based clues in the input, (3) strategies of learning L2 grammar, and (4) opinions on the use of Polish in learning English grammar. A subsequent analysis involved more specific coding, with a focus on comparing the accounts of the same issue by different participants and differing perspectives on the same issue provided by the same participant (as recommended by Friedman 2012: 191), and, finally, a selection of interview excerpts to include in the data presentation. The qualitative data obtained through the interview are displayed in section 6.7. in Chapter 6 in the form of excerpts from the participants' utterances, and the researcher's summaries and paraphrases of them, organized around the themes that emerged during the data analysis stages.

5.7.5. A summary of data elicitation and analysis methods

In order to illustrate this approach within the present study, Table 15 sums up the aims of the study, together with the undertaken kinds of data elicitation techniques and the methods of their analysis.

Table 15. A summary of the main aims of the study together with the data elicitation and analysis techniques used to address them.

Aim / research question	Data elicitation technique	The kind of analyzed data	Data analysis method
Comparing the frequencies of strategy occurrence across the groups / RQ 1	TAP	Frequency counts	Quantitative: – descriptive statistics (mean and standard deviation), – a two-way repeated measures ANOVA, – a post hoc Bonferroni test, – an independent-samples t-test (for parametric data sets), – effect size (Cohen's d), – Mann-Whitney U-test (for non-parametric data sets)
Exploring the functions of the L1 in processing the input and doing the grammatical tasks / RQ 2	TAP	Excerpts from transcriptions of verbal reports	Qualitative: – analysis of participants' utterances
Verifying the effectiveness of processing and learners' understanding of how the structures work in output tasks / RQ 3	GF tasks, Post-test GJ tasks with confidence ratings	Test scores, gain scores, confidence rating scores	Quantitative: – descriptive statistics (mean and standard deviation), – an independent-samples t-test (for parametric data sets), – effect size (Cohen's d), – Wilcoxon Signed Ranks Test (for non-parametric data sets), – Mann-Whitney U-test (for non-parametric data sets)

Establishing correlations between grammatical sensitivity levels, and strategy use and test scores / RQ 4	Grammatical sensitivity test, GF tasks, Post-test GJ task	Test scores	Quantitative: – descriptive statistics (mean and standard deviation) for the aptitude test scores, – Pearson's r correlation test
Gathering participants' opinions about the role of the L1 in the study tasks and in learning grammar / RQ 5	Interview	Transcriptions of participants' utterances	Qualitative: – analysis of participants' utterances

5.8. Concluding remarks

In the present chapter, the research methodology applied in the design of the study has been described in detail. The study employed a convergent mixed methods design, in which qualitative and quantitative data were connected in parallel, analyzed separately, and then merged at the interpretation stage. The quantitative data were collected to provide the frequencies of the mental processing strategies denoting degrees of conscious processing and applied by the participants in the tasks, as well as test scores which denoted participants' explicit (conscious) knowledge of the target structures. The qualitative data, in turn, supplied information about the nature of the processing, with special focus on the functions of the L1 in the mental processes stimulated by the tasks, and about participants' perceptions of the role of the L1 in learning L2 grammar. The reason for collecting both quantitative and qualitative data was to ensure data triangulation, leading to a broader scope and a greater depth of the analysis of the explored phenomena. A think-aloud protocol was the key data elicitation technique used in the study, pointing to its primarily process-oriented perspective on learning. However, the product-orientation was also present in the study design, providing different kinds of data.

The explanation of the sampling, the research methods and the procedures involved in the collection and analysis of the research data is intended to allow the reader to evaluate the validity of a study presented in a given research report, therefore, any empirical data presentation needs

to be preceded by a comprehensive account of its design, as advocated by Leow (2015a). It is therefore assumed that the information included in this chapter will facilitate the understanding of the research findings which will be presented in the following chapter, Chapter 6.

Chapter 6

The study: Results

6.0. Introduction

In the present chapter, the results of the study exploring the role of the L1 in learning L2 grammar, or, more specifically, investigating the role of L1 clues in raising learners' consciousness about L2 grammatical structures will be presented. The presentation of the results of the study will be organized into seven sections. In the first section (6.1.), the types and frequency counts of the mental processing strategies identified through an analysis of the think-aloud protocols (TAPs) will be demonstrated (this analysis corresponds to RQ 1 as formulated in the purpose of the study). This will be followed by an examination of the lower- and higher-processing cognitive strategies in both groups (section 6.2.), which also corresponds to RQ 1. A qualitative analysis of the functions of the L1 in the process of learning L2 grammar, as evidenced in the mental processing strategies, will be undertaken in section 6.3. This analysis addresses RQ 2. Section 6.4. will be devoted to a presentation of the scores obtained by the study participants in the gap-fill (GF) tasks, and section 6.5. – of the GJ tasks and confidence ratings scores (both sections correspond to RQ 3). In section 6.6., the results of the grammatical sensitivity test and their correlations with other variables will be outlined, and this analysis is related to RQ 4. Finally, section 6.7. will present a qualitative analysis of the debriefing interview findings, in this way addressing RQ 5.

As stated in Chapter 5, the study was of a mixed-methods character, which means that the results of the measurements comprised both quantitative and qualitative data. Therefore, some of the sections in this chapter contain quantitative data displayed visually with the help of tables and figures, while others include qualitative data in the form of excerpts from participants' utterances together with their interpretations.

6.1. Types and frequencies of strategies identified in the TAPs

In this section, types and frequencies of the mental processing strategy used by the study participants will be presented. A comprehensive list of all of the strategies which were identified in the TAPs produced by the participants in the two sessions (Session 1, devoted to learning the First Conditional and Session 2 – the Passive Voice) was presented above in Table 14 in Chapter 5. These strategies were classified into three groups, cognitive, metacognitive, and affective. Naturally, particular strategies were applied by the participants to varying degrees, depending on a specific task and on an individual participant.

One of the first steps in the analysis was to check whether there were differences in terms of cognitive, metacognitive and affective strategy use across the two groups of participants (BG and MG), the two sessions (Session 1 – First Conditional and Session 2 – Passive Voice), and the three tasks: the input processing (IP) task, the gap-fill (GF) task and the post-test grammaticality judgment (GJ) task. It is important to stress that before any statistical testing was applied, the data were checked for normal distribution, because several statistical tests, such as ANOVA and t-test, can only be run if the data meet the requirement of normal distribution (Field 2009; Larson-Hall 2010).

A Shapiro-Wilk test ($p > .05$) and a visual inspection of the histograms, normal Q-Q plots and box plots showed that data sets had approximately normal distribution for both groups (BG and MG) for cognitive and metacognitive strategies. The cognitive strategies data had a skewness of .220 (*SE* = .580) and a kurtosis of -1.255 (*SE* = 1.121) for the BG, and a skewness of .388 (*SE* = .580) and a kurtosis of -.483 (*SE* = 1.121) for the MG. The metacognitive strategies data had a skewness of -.273 (*SE* = .580) and a kurtosis of -.604 (*SE* = 1.121) for the BG, and a skewness of .701 (*SE* = .580) and a kurtosis of 1.705 (*SE* = 1.121) for the MG. The data for the occurrence of affective strategies did not meet normal distribution criteria.

As a consequence, the data for cognitive and metacognitive strategies underwent parametric statistical procedures, while the data for affective strategies were further analyzed with the use of nonparametric tests. The results of these analyses are presented in the following subsections (6.1.1. – 6.1.3.).

6.1.1. Cognitive strategies

In order to investigate mean differences in the application of cognitive and metacognitive strategies, a two-way repeated measures ANOVA, using a 2×3×2 repeated measures design, was conducted to compare the differences in two within-groups variables, namely in the sessions (Session 1 – First Conditional and Session 2 – Passive Voice) and the tasks (the IP task, the GF task and the GJ task) across the two groups of participants (as a between-groups independent variable). This was considered an important step, determining whether further calculations should be performed separately for the sessions and tasks or not.

With regard to cognitive strategies, the ANOVA (with the Huynh-Feldt correction) showed that there was no statistical effect for session ($F(1, 28) = 2.31$, $p = .14$) or for session*group ($F(1, 28) = .566$, $p = .458$). However, the ANOVA revealed a significant effect for task ($F(1.579, 44.216) = 39.022$, $p < .001$) and for the task*group interaction ($F(1.579, 44.216) = 2.31$, $p < .05$). There was also a statistical effect for the group factor ($F(1, 28) = 33.636$, $p < .001$). Post hoc tests using the Bonferroni correction revealed that there was a significant difference between the mean values of cognitive strategy use by the two groups (BG mean = 3.34, MG mean = 2.21, $p = .000$), and between the IP and GJ tasks (IP task mean = 3.17, GJ task mean = 1.98, $p = .000$) and between the GF and GJ tasks (GF task mean = 3.17, GJ task mean = 1.98, $p = .000$). The post-hoc Bonferroni test also confirmed that the session factor did not show significant differences (Session 1 mean = 2.74, Session 2 mean = 2.80, $p = .388$).

Therefore, on the basis of the preliminary results of the repeated measures ANOVA and the post-hoc Bonferroni test outcomes, subsequent analyses on the data obtained for the cognitive strategies were conducted across the groups (the bilingual group, BG, and the monolingual group, MG) and across the three tasks (the IP task, the GF task and the GJ task), but disregarding the distinction between the two sessions. Data obtained in the two sessions were collated and will be presented collectively, because there were no statistical differences across the two data sets. Data for tasks and groups obtained over the two sessions were the basis for further analyses and comparisons.

In order to give an overview of the intensity of paticipants' use of *cognitive strategies*, Figure 4 presents the total sums of the occurrences of these strategies in the performance of all tasks (IP, GF and GJ) over both sessions.

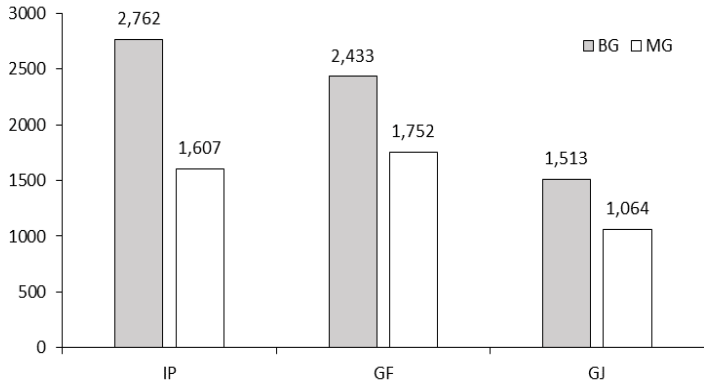

Figure 4. Total numbers of instances of cognitive strategy use by the participants in all tasks (IP, GF, GJ) in both sessions (Session 1 and Session 2).

As can be seen in Figure 4, the largest number of the instances of cognitive strategy use (2,762) occurred in the BG's performance of the IP task, followed by its performance of the GF task (2,433 uses). In the MG, the GF task stimulated the highest number of cognitive strategy applications (1,752), with the IP task yielding 1,607 of them. The GJ task stimulated the lowest volume of cognitive strategy use in both groups. It is clear from Figure 4 that the overall numbers of cognitive strategy applications were higher in the BG than in the MG.

Tables with specific frequency counts and descriptive statistics (mean and standard deviation values) in relation to particular *cognitive strategies* can be found in Appendix 7 (Tables A1 – A6), and will be referred to in the present section. Table A1 presents data illustrating the frequencies of the occurrence of cognitive strategies in the *input processing (IP)* task in the BG, together with mean and standard deviation values, while Table A2 presents equivalent data for the MG.

For clarity of presentation, it should be recalled that in the IP task, participants processed texts featuring numerous examples of the target structures, with input flood, visual input enhancement (the target forms were under-

lined) and L1 translations in the BG, and a rule in English in the MG. As can be seen in Tables A1 and A2, 'reading aloud in English' (RA_ENG) was the most frequently used strategy in both groups during the IP task. All BG and most MG participants applied this strategy, which means that they read out portions of the English text while processing it. Two MG participants (M6 and M9) did not use this strategy; while M6 applied 'selective reading aloud' (SRA_ENG), M9 chose not to read aloud at all. A similar strategy, 'reading aloud in Polish' (RA_POL) occurred in the BG very often, in other words, the participants read aloud the brief Polish translations of the target forms included in the input as one form of input enhancement. Naturally, neither this strategy nor 'selective reading in Polish' (SRA_POL) occurred in the MG, because MG input did not contain any Polish text to read.

The intensity of using *L1-based strategies*, 'own translation' (OT), 'just translation' (JT), 'comparing English and Polish forms' (COMP_ENG_POL), 'comparing Polish forms' (COMP_POL), and 'code-switching' (CS) is illustrated by Figure 5, which presents the total numbers of occurrences of these strategies in all tasks, summed up for both sessions.

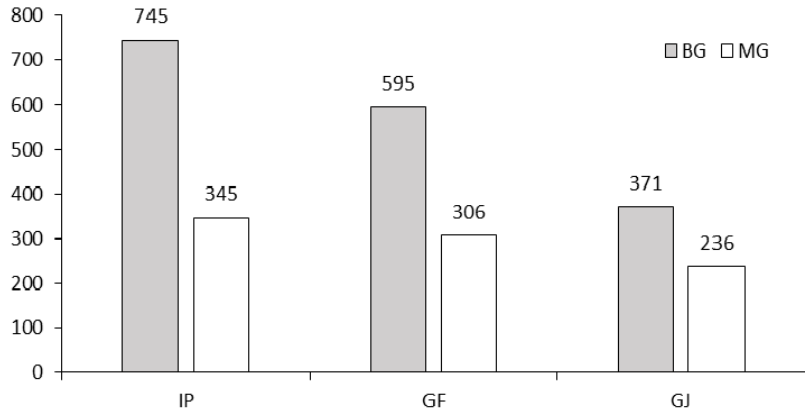

Figure 5. Total numbers of instances of L1-based cognitive strategy use by the participants in all tasks (IP, GF, GJ) in both sessions (Session 1 and Session 2).

As can be seen in Figure 5, the highest numbers of L1-based strategies were found in the TAPs produced during the performance of the IP task (745 in the BG and 345 in the MG). The GF task stimulated 595 uses of such strategies in the BG and 306 in the MG, and the GJ task – 371 in the BG and 236 in the MG.

The data in Tables A1 and A2 indicate that 'own translation' (OT) was the second most frequent strategy in the BG. It was also present in the MG, but to a considerably lower extent. Interestingly, the occurrence of a similar strategy, 'just translation' (JT), was at a similar level in both groups. Using this strategy, the participants translated the English text without reading it out loud, regardless of whether the Polish translations for the underlined structures were provided in the input or not. In fact, the highest frequency of the use of the JT strategy was recorded for participants from the MG, M1 and M8. JT was a prevailing strategy used by these two participants. Translation (OT and/or JT) was used by all BG participants and almost all MG participants (with one exception – M9). However, the intensity of its use differed across the groups, which can be seen not only in the mean values, but also in high levels of individual variation among the participants, particularly in the MG (which is also reflected in SD values). Other L1-based strategies were used with a lower frequency in the MG than in the BG, although they were present in both groups. While in the BG the strategy of explicitly 'comparing English and Polish forms' (COMP_ENG_POL) was used by 14 out of the total of 15 students, in the MG only eight students used it. 'Code-switching' (CS), however, occurred in 11 BG and 10 MG protocols, although it was used by the MG participants with a lower intensity. 'Comparing Polish' forms (COMP_POL), a strategy which consisted in juxtaposing two or more Polish translations in order to look for patterns, was the only strategy, apart from reading in Polish, which was used in the BG, but not in the MG.

It is also worth stressing that BG participants inferred the meaning (INF_MEAN) of structures more frequently than MG participants, although another strategy directly connected with a focus on the meaning of texts, 'interpreting meaning' (INT_MEAN), was applied at similar levels in both groups. Other strategies whose frequency of occurrence differed widely across the two groups, with a higher intensity of use in the BG than in the MG, were 'referring to other parts of the input' (REF) and, interestingly, 'referring to the rule' (REF_RULE), although it was the MG input that presented the participants with a rule. The BG participants referred to rules formulated by themselves during the processing of the input or to rules recalled from previous knowledge.

Tables A3 and A4 (Appendix 7) present the frequencies of the use of all *cognitive* strategies in the *gap-fill (GF)* task. It should be remembered that this task was identical for both groups; the difference, however, lay in

the fact that since the participants could refer to their input while doing the GF activity, the BG group had access to the enhanced input with translations, while the MG had access to the enhanced input with a rule.

According to the data in Tables A3 and A4, 'inferring the form' (INF_FORM) was the most frequently used strategy, with very similar mean values across both groups. This finding is not surprising given the fact that the aim of the GF task was to arrive at a solution and provide correct forms of verbs in brackets. Likewise, 'making inferences about the meaning' (INF_MEAN) was present in both groups at very similar levels, although the use of this strategy was considerably more diverse in the MG (which is reflected by the high standard deviation levels for this strategy). The second most frequent strategy in the BG was 'own translation' (OT), which was also frequently applied in the MG. In fact, all participants in both groups used this strategy, although in the MG two students used it only once (M2 and M4), while in the BG the lowest number of OT occurrence was 10. A related strategy, 'just translation' (JT), was used frequently, and at similar levels in both groups. The remaining L1-based strategies were present in both groups, but with a much greater intensity in the BG, which is a similar pattern to the one observed at the IP task. For example, all BG and 10 MG participants compared English and Polish forms (COMP_ENG_POL), and 11 BG and 6 MG students compared Polish forms (COMP_POL). 'Code-switching' (CS) was applied by a similar number of students in both groups (12 in the BG and 11 in the MG), but the frequency counts differed for the groups, as indicated by the mean values.

Another strategy whose use was considerably more frequent in the BG than in the MG was 'referring to other parts of the input' (REF), which indicates that BG participants were more eager to refer to the input texts in searching for clues in doing the GF task. On the other hand, it should be noted that one MG participant, M2, used this strategy as many as 36 times in doing the GF task. Other strategies involving making references, namely 'referring to previous knowledge' (PREV_KN) and 'referring to the rule' (REF_RULE), were used more frequently in the BG, although their use was generally at a low level. In Session 2, making references to previous knowledge was usually connected with trying to remember past participle forms. The occurrence of many other important strategies, such as 'interpreting the meaning' (INT_MEAN), 'comparing English forms' (COMP_ENG), and 'metalinguistic reasoning' (MLR) did not vary significantly across the two groups. A relatively high number of students in both groups used met-

alinguistic terminology in their TAPs while examining grammatical structures, and individual variation was evident within this strategy in both groups; for example, in the BG, student B12 did not use this strategy at all during the GF task, and student B11 used it 21 times. In the MG, the occurrence of MLR ranged between 0 (M7 and M14) and 19 (M1).

Tables A5 and A6 (Appendix 7) present information about cognitive strategy occurrence in both groups during the *GJ task*. In this task, participants thought aloud while making grammaticality judgments. An important difference in relation to the previous (GF) task was that in this task they did not have access to the input texts. Therefore, in making the judgments, they could only rely on what they remembered from the previous tasks.

It is visible from Tables A5 and A6 that again, as in the previous tasks, the most frequent strategy in both groups was 'reading aloud in English' (RA_ENG), with 'selective reading aloud' (SRA_ENG) being used considerably less frequently, and at very similar levels in both groups. Out of the strategies involving repetition, 'repeating English words' (RW_ENG) appeared to be the most popular strategy in both groups. Here, as with other groups of strategies, the mean values of strategy use were higher in the BG, while the standard deviation values tended to be relatively higher in the MG, indicating a higher individual diversity within the MG. Translation-based strategies (OT and JT), although used most intensively by BG participants, were applied with high frequency in the MG as well. For example, all of the BG participants made use of the 'own translation' (OT) strategy, with inter-subject variation ranging between two uses of the strategy (B8) to 21 (B11 and B12). In the MG, 13 participants used this strategy, with a within-group variation between one use of it (M4 and M6) and 20 (M1). The mean value for the 'just translation' (JT) strategy was slightly higher for the MG. Other L1-based strategies, with the exception of 'comparing Polish forms' (COMP_POL), which was applied by BG participants only, were used in the MG as well, but their occurrence in both groups was rather scant, and significantly lower than in the previous tasks. 'Code-switching' (CS), for example, was applied by 10 BG and 6 MG participants, with six being the maximum number of uses per person.

Within strategies involving reasoning and analysis, the strategies of making inferences about the form and meaning (INF_FORM and INF_MEAN) were used by participants in both groups at similar levels as indicated by a comparison of the mean values. 'Metalinguistic reasoning'

(MLR) and 'referring to other parts of the input' (REF) were applied slightly more frequently by BG participants. As it was no longer possible to directly refer to the previously encountered input while doing this task, this strategy consisted in referring to other sentences within the same task as well as trying to remember instances of forms or translations from the previous tasks. Although the mean values for 'referring to the rule' (REF_RULE) were rather low for both groups, it is interesting to note that BG students used this strategy more frequently (11 BG and 6 MG participants made use of it). Again, as in the previous task, this strategy denoted attempts to recall the rule either formulated by the students on the basis of the input during the IP task or from previous knowledge.

Table 16 presents, in a collective form, the results of an independent-samples t-test, which was applied to compare the means calculated for the cognitive strategies between the two groups. While Tables A1 – A6 (Appendix 7) present the raw data illustrating the distribution of the strategies for each participant, this procedure looks at mean values calculated for sets of strategies, individually for each of the three tasks (IP, GF and GJ). Two strategies, based on reading in Polish (SRA_POL and RA_POL), were excluded from the t-test analysis because, following the design of the study, they were not applicable in the MG.

Table 16. The results of an independent-samples t-test measuring the equality of means for cognitive strategies for both groups (BG and MG).

Stage	Bilingual group (BG) n = 15		Monolingual group (MG) n = 15		t	df	Sig. (2-tailed)
	M	SD	M	SD			
IP task	165.00	40.35	107.60	32.16	4.31	28	.000
GF task	160.20	27.96	115.73	34.80	3.86	28	.001
GJ task	106.56	24.73	73.93	21.16	3.87	28	.001

As can be seen in Table 16, statistically significant differences were observed between the two groups for all three tasks (for all tasks, $p \leq .001$). Moreover, it should be noted that effect sizes for all measurements were large: for the IP task, Cohen's $d = 1.628$, for the GF task, $d = 1.458$, and for the GJ task, $d = 1.463$. These values further confirm the p-value and statistical testing outcomes, indicating that the relationship between the independent and dependent variables was strong. Therefore, it can be seen

that the BG and MG groups' use of cognitive strategies differed for each of the tasks, and that the use of cognitive strategies was more intensive among the BG than among the MG participants.

Finally, it is worth listing the most popular cognitive strategies in each group on the basis of the mean values of the frequencies of their use. This information is displayed graphically in Figures 6 and 7.

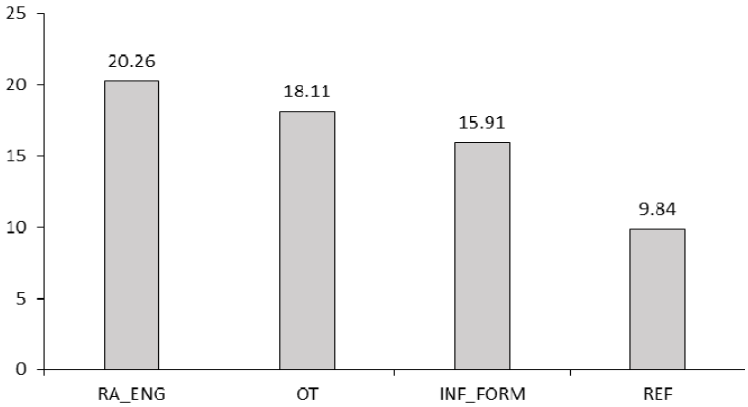

Figure 6. Mean values for the most frequently used cognitive strategies by BG participants.

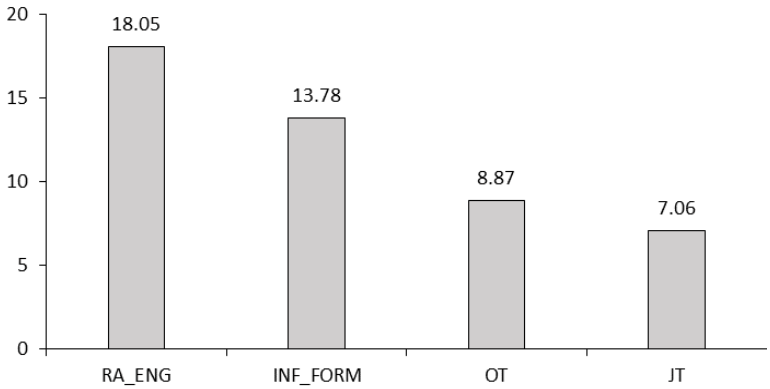

Figure 7. Mean values for the most frequently used cognitive strategies by MG participants.

As can be seen in Figure 6, the most frequently used cognitive strategies in BG were: 'reading aloud in English' (RA_ENG), 'own translation' (OT), 'inferring the form' (INF_FORM), and 'referring to other parts of the input'

(REF). In the case of the MG (Figure 7), these were: 'reading aloud in English' (RA_ENG), 'inferring the form' (INF_FORM), 'own translation' (OT), and 'just translation' (JT). It is thus clear that there were similarities in the choice of the most frequent strategies; the intensity of their use, however, differed between the two groups.

6.1.2. Metacognitive strategies

Figure 8 illustrates the total numbers of the occurrence of the *metacognitive strategies* identified in the participants' TAPs in the three tasks (IP, GF and GJ) across the two sessions (Session 1 and Session 2).

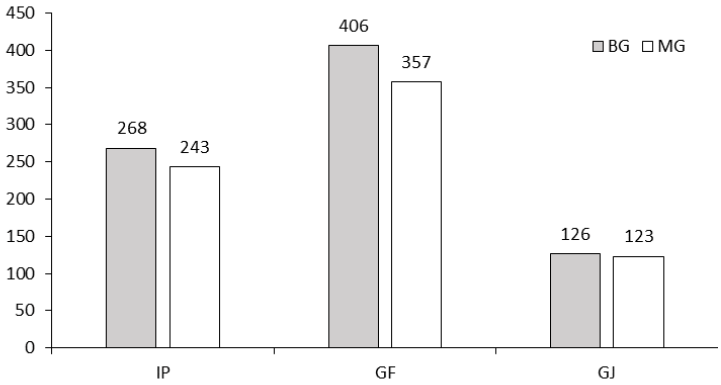

Figure 8. Total numbers of instances of metacognitive strategy use by the participants in all tasks (IP, GF, GJ) in both sessions (Session 1 and Session 2).

As can be seen in Figure 8, the highest numbers of metacognitive strategies were applied in the GF task: 406 in the BG and 357 in the MG. In the IP task, BG participants used such strategies 268 times, while MG participants – 243 times. The GJ task stimulated 126 uses of metacognitive strategies in the BG, and 123 uses in the MG. It can thus be seen that the intensity of the application of metacognitive strategies did not differ considerably between the two groups.

This was also confirmed by further statistical analyses. For metacognitive strategies, none of the relevant distinctions (across the groups, the tasks and sessions) appeared to be statistically significant. The ANOVA (with the Huynh-Feldt correction) revealed that there was no statistical ef-

fect for session*group ($F(1, 28) = .566$, $p = .458$), for session*task ($F(1.855, 51.943) = .711$, $p = .486$), or for task*group ($F(1.564, 43.796) = .291$, $p = .695$). The data will thus be summed up and displayed together for both sessions and for the three tasks. For clarity of the presentation of raw frequencies and descriptive statistics, however, they are displayed separately for the two groups (see Tables A7 and A8, Appendix 7).

Concerning the occurrence of metacognitive strategies connected with monitoring one's processing, on the basis of Tables A7 and A8 it can be seen that all participants in both groups used the 'managing text processing' (MAN) strategy, and almost all, with the exception of two MG participants, used a related strategy, 'explaining one's way of processing texts' (EXPL). Within evaluation strategies, 'expressing doubt' (DOUBT) was the most frequently used strategy in both groups, and its occurrence was slightly higher in the MG. Another strategy which was more frequently used in the MG was 'expressing a lack of understanding' (NO_UND). Fourteen MG and 11 BG participants expressed a lack of understanding at least once over the three tasks (IP, GF and GJ), although the maximum number of such expressions, 21, was recorded in the BG (participant B3). On the other hand, BG students expressed 'understanding' (UND) and a 'confirmation of their reasoning' (CONF) considerably more frequently than MG students. 'Self-correction' (COR) and 'evaluation of the input' (EVAL) were applied at similar levels in the two groups.

Despite differences in the use of individual strategies, as was suggested by the omnibus ANOVA and further confirmed by an independent-samples t-test, no statistical differences were found between the two groups in relation to metacognitve strategy use. There was no significant difference in the collective scores for the BG ($M = 53.33$, $SD = 21.33$) and the MG ($M = 48.2$, $SD = 18.49$); $t(28) = .704$, $p = .49$. These results suggest that the overall frequency of the use of strategies connected with monitoring, organizing and evaluating the performance of tasks, despite individual variation within each of the groups, did not differ significantly across the groups. The input modifications (L1 enhancement and the presence of the rule) did not influence the participants' processing at a metacognitive level.

It seems interesting, however, to compare the most frequently used strategies according to the mean values of the frequencies of their use in both groups. Figures 9 and 10 present this information.

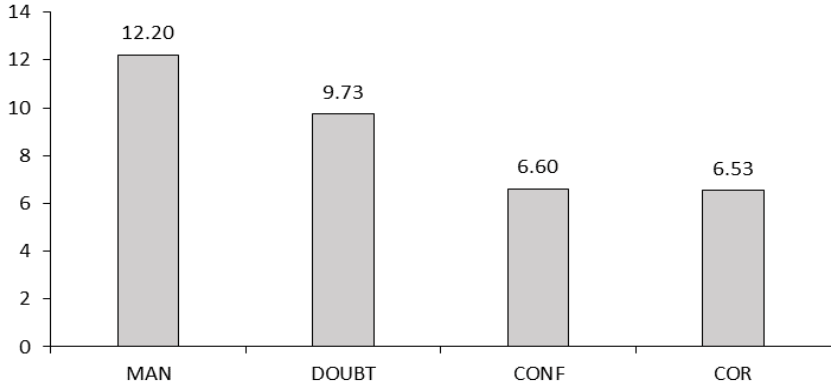

Figure 9. Mean values for the most frequently used metacognitive strategies by the BG.

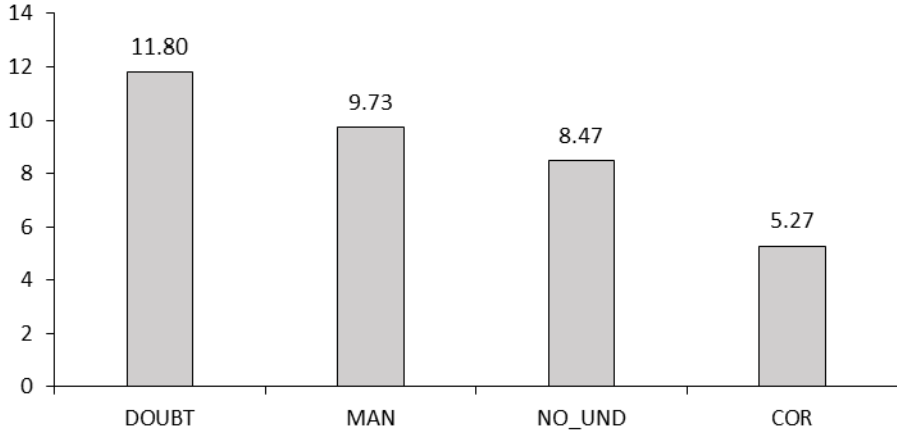

Figure 10. Mean values for the most frequently used metacognitive strategies by the MG.

As can be seen in Figure 9, the most popular metacognitive strategies in the BG were: 'managing text processing' (MAN), 'expressing doubt' (DOUBT), 'confirmation of one's reasoning' (CONF), and 'self-correction' (COR). In the MG (Figure 10), these were: 'expressing doubt' (DOUBT), 'managing text processing' (MAN), 'expressing a lack of understanding' (NO_UND), and 'self-correction' (COR).

6.1.3. Affective strategies

Figure 11 displays the total numbers of instances of using *affective strategies* by the participants in doing the three tasks in both sessions. The category of affective strategies comprised only four specific types of strategies, and the total volume of the use of these strategies was lower than in the case of either cognitive or metacognitive strategies (Figures 4 and 6).

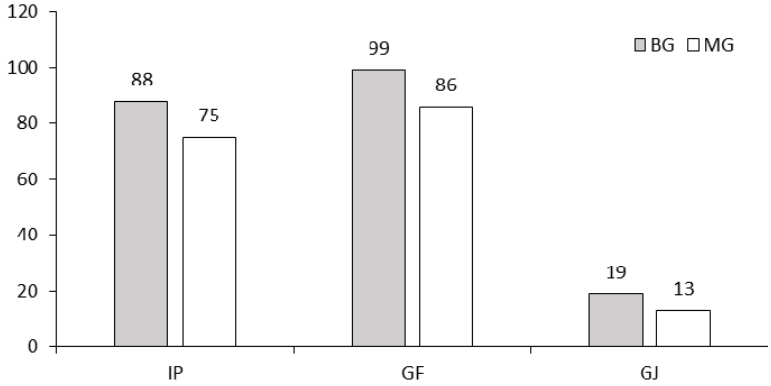

Figure 11. Total numbers of instances of affective strategy use by the participants in all tasks (IP, GF, GJ) in both sessions (Session 1 and Session 2).

It can be seen that the highest number of affective strategy use by both groups occurred in the GF task (99 for the BG and 86 in the MG). Similar levels of affective strategy use, 88 for the BG and 75 for the MG, were found in the TAPs produced in the IP task. The performance of the GJ task stimulated 19 uses of these strategies in the BG and 13 in the MG.

As stated before, the data set for affective strategies did not meet the criteria of normal distribution; therefore, the frequency of occurrence of affective strategies across the groups was tested using nonparametric tests. An independent samples Kruskall Wallis test showed that the distribution of affective strategies for the three tasks, i.e. the IP task, the GF task and the GJ task, was the same across the groups and in both sessions ($p > .05$ in all conditions). Consequently, since no statistical differences were found for affective strategies across the tasks and the sessions, the frequency of their occurrence will be presented as a sum of their occurrences in all three tasks (IP, GF, GJ) and in both sessions, but separately for the two groups.

It can be seen from Tables A9 and A10 (Appendix 7) that relatively few affective strategies were applied by the participants during the three tasks (IP, GF, GJ) and recorded in the TAPs. 'Making non-metalinguistic comments on the input' (COM) was the most frequent strategy of this kind in both groups. This strategy involved, for example, commenting on the situations described in the input or linking them with the participants' personal lives. The data in Tables A9 and A10 show a considerable individual variation in the use of this strategy, with participant M2 using it 20 times, while the median value for both groups was 4. 'Humor' (HUM) was evident in more BG (12) than MG (7) protocols, and the median values reflected the differences in the use of this strategy across the groups. This strategy generally seems to be closely connected with the strategy of 'demonstrating positive emotions' (EMOT_POS), through, for example, paralinguistic signals (such as singing parts of the input, as demonstrated by one of the MG participants) or exclamations, which also occurred more frequently in the BG. Eleven BG participants and 8 MG participants displayed the EMOT_POS strategy in doing the tasks. The strategy of 'showing negative emotions' (EMOT_NEG) was applied at a similar level in both groups, with 13 BG and 12 MG participants expressing negative emotions.

As the data for the affective strategies were not normally distributed, the most appropriate statistical test to check differences between the two groups was Mann-Whitney U. The results of the comparisons are shown in Table 17. As can be seen, for all four affective strategies, the differences did not appear to be statistically significant ($p = .744$).

Table 17. The results of the Mann-Whitney U-test for between-group differences concerning the use of affective strategies (calculated collectively for both sessions and all tasks).

Value	HUM	EMOT_POS	EMOT_NEG	COM
Mann-Whitney U	89.50	77.50	108.00	104.50
Z	-.984	-1.498	-.189	-.335
Exact Sig.	.345	.148	.870	.744

The median values and the range of distribution for the affective strategies are graphically presented in Figure 12. As can be seen, although the median point is higher for the BG, the MG has a wider range of affective strategy distribution.

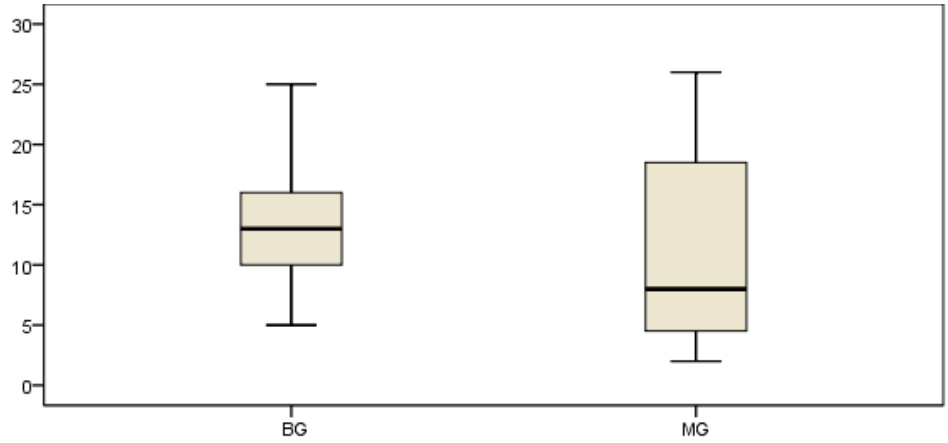

Figure 12. Median values and the range of distribution of affective strategies in the BG and the MG.

Recently, the role of affect in L2 learning has received substantial recognition from researchers (Arnold 1999; Hurd 2008) as an integral part of learning, often responsible for its final outcomes. Although affect, metacognition and cognition are closely related, and there are definitely mutual influences between them, the main focus in this study is on cognitive procedures, and therefore, metacognitive and affective strategies will not undergo further statistical analyses.

Summing up the main findings in this section, the following points can be made:

- The total numbers of instances of the use of cognitive strategies were higher in the BG than in the MG for all tasks, which was also confirmed by the comparisons of the mean scores of cognitive strategy use in both groups.
- L1-based cognitive strategies were used with high intensity by both groups, but considerably more frequently by the BG, especially in the IP task.

- 'Reading aloud in English,' 'own translation' and 'inferring the form' were the most frequent cognitive strategies in both groups.
- Although the sums of metacognitive and affective strategies were higher for the BG than for the MG for all tasks, no between-group differences were revealed by statistical procedures.
- 'Managing text processing,' and 'expressing doubt' were the most frequent metacognitive strategies in both groups.
- 'Making non-metalinguistic comments on the input' was the most frequent affective strategy in both groups.

6.2. Cognitive strategies: Levels of processing

The frequency counts presented in the previous section illuminated the types of strategies applied by the participants in performing the tasks and the intensity of their occurrence across groups and tasks. However, the frequency counts did not provide information about the *depth of processing* involved; and the depth of processing is of utmost importance within the scope of the present study, because it could be interpreted as indicating levels of consciousness. In section 5.7.3. in Chapter 5, several examples of previous studies (Calderón 2013; Leow et al. 2008; Morgan-Short et al. 2012) which employed the depth-of-processing perspective in investigating consciousness in SLA were quoted; in those studies, a distinction was made among mental strategies that denoted shallower and deeper mental processing.

Following these examples, in the present study, the *cognitive* strategies identified in the participants' TAPs were further divided into two groups according to the level of processing they were assumed to refer to. Consequently, two subgroups of cognitive strategies were distinguished: *lower-level* processing and *higher-level* processing strategies. It was assumed that strategies involving reading aloud, involving repetition, and some of the strategies involving mental processing (see Table 14) were associated with lower levels of processing, because, although they indicated a cognitive manipulation of the input or performing a task, in principle, they involved an initial level of mental operations. Strategies involving higher-order reasoning, comparisons, inferencing, etc., were grouped under the heading of 'higher-processing strategies.'

Consequently, the following strategies were assigned to these groups:

- Lower-level processing strategies: SRA_ENG, RA_ENG, SRA_POL, RA_POL (strategies involving reading aloud), RW_ENG, RW_POL, RR, RT (strategies involving repetition), INTU, ATT_FORM, SOU_TH (selected strategies involving reasoning);
- Higher-level processing strategies: OT, JT, COMP_ENG_POL, COMP_POL, CS (strategies involving reference to L1), INT_MEAN, COMP_ENG, INF_FORM, INF_MEAN, MLR (strategies involving reasoning and analysis), REF, PREV_KN, REF_RULE (strategies involving reference to information).

The analyses presented in this section will thus be devoted to a comparison of the occurrence of these groups of strategies in the TAPs produced by participants in both groups. It is important to note that two strategies, RA_POL and SRA_POL, will be excluded from these analyses because they did not occur in the MG, whose input did not contain any Polish text to be read aloud.

In order to compare the mean values for the groups of strategies, a series of independent-samples t-tests were conducted. Table 18 presents the results of independent-samples t-tests for comparing the differences in the use of the lower-level processing strategies by both groups.

Table 18. The results of an independent-samples t-test measuring the equality of means for lower-level processing cognitive strategies for both groups (BG and MG).

Tasks	Bilingual group (BG) n = 15		Monolingual group (MG) n = 15		t	df	Sig. (2-tailed)
	M	SD	M	SD			
IP task	64.40	15.06	56.87	22.43	1.08	24.49	.291
GF task	46.80	12.13	34.93	15.25	2.36	28	.026
GJ task	44.87	8.73	33.07	9.82	3.48	28	.002

As can be seen in Table 18, the mean values were higher for the BG, but the higher standard deviation values for the MG in all tasks revealed a greater diversity of lower-level processing strategy use among MG participants. According to the data in Table 18, there was no significant differ-

ence between the two groups' use of lower-level processing strategies in the IP task (p = .291), although the effect size for this variable was small-to-medium (Cohen's d = .43). Statistically significant effects were observed for the two remaining tasks, the GF and the GJ tasks (p = .026 and p = .002, respectively). The effect sizes were large: for the GF task, Cohen's d = .89, and for the GJ task, d = 1.32, suggesting a high practical significance of the difference between the groups for these two tasks.

Figure 13 presents a graphic illustration of the occurrence of lower-level processing strategies in both groups, BG and MG. It can be seen that the range of the distribution of the strategies was greater in the MG for the IP and GF tasks, while it was at a similar level for both groups in the case of the GJ task.

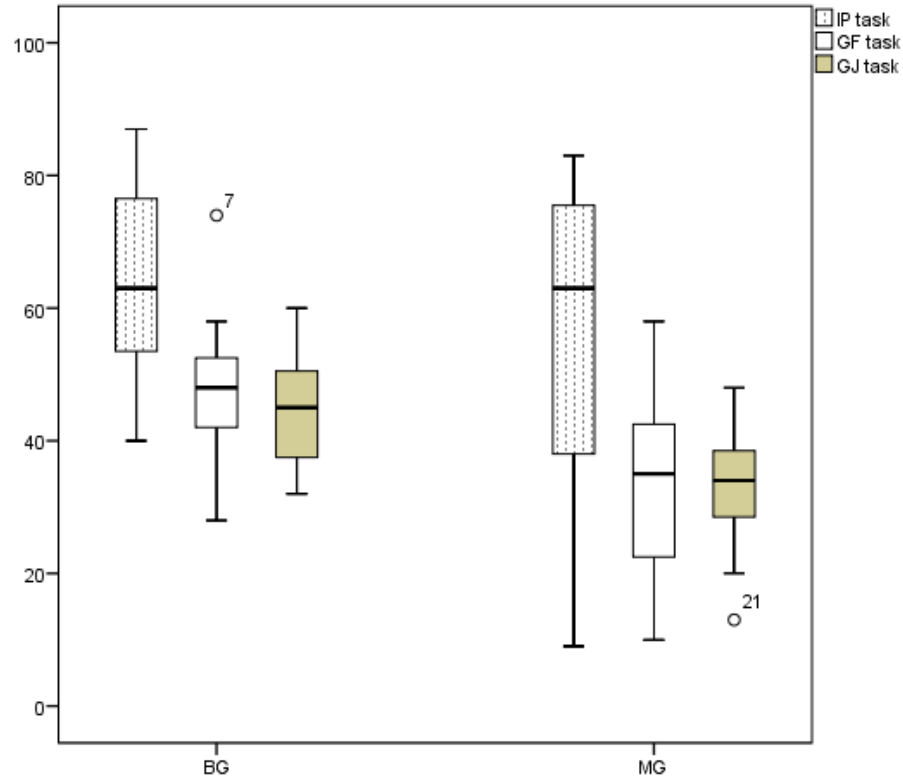

Figure 13. Boxplots of the occurrence of lower-level processing cognitive strategies in the BG and the MG.

Table 19 contains the results of a parallel series of three independent-samples t-tests measuring the differences between the groups' mean frequencies of use of higher-level processing strategies.

Table 19. The results of an independent-samples t-test measuring the equality of means for higher-level processing cognitive strategies for both groups (BG and MG).

Tasks	Bilingual Group (BG) n = 15		Monolingual Group (MG) n = 15		t	df	Sig. (2-tailed)
	M	SD	M	SD			
IP task	100.60	33.52	50.73	29.94	4.30	28	.000
GF task	115.40	23.24	81.87	27.65	3.60	28	001
GJ task	56.00	24.20	37.87	19.84	2.24	28	.033

The data in Table 19 show that there were statistically significant differences between the groups for all three tasks in the TAPs (IP, GF and GJ), as in all cases $p < .05$. This means that the BG used higher-level processing cognitive strategies with a considerably higher frequency than the MG. This result was also confirmed by large effect sizes for all tasks, which suggests a high practical significance of the between-group differences. The largest effect size was reported for the IP task (Cohen's $d = 1.63$), slightly lower for the GF task ($d = 1.36$), and the lowest, although still large, for the GJ task ($d = .85$). Figure 14 illustrates the distribution of the higher-level processing cognitive strategies for the three tasks in the BG and the MG.

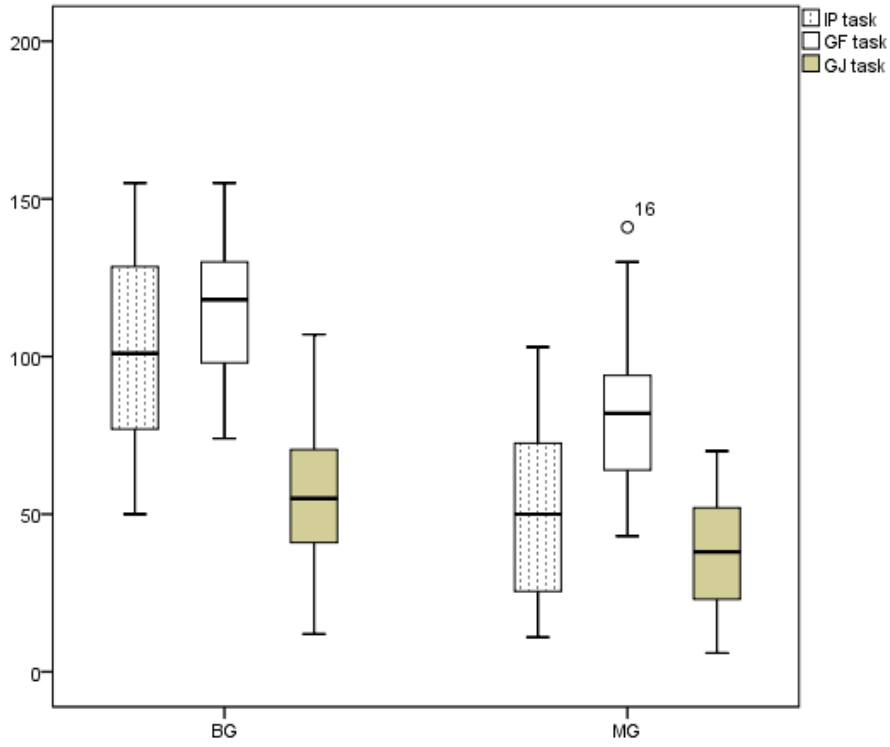

Figure 14. Boxplots of the occurrence of higher-level processing cognitive strategies in the BG and the MG.

In Figure 14, the differences in median points and ranges of the distributions of the strategies within each of the groups can be clearly seen. Although the median points differ between the two groups, the ranges of strategy distribution appear to be similar. On the basis of visual inspection, the boxplots representing strategy occurrence in the GJ task for both groups appear to be the most similar.

The following two points should be stressed as the main findings presented in this section:

- The BG used more lower-level processing strategies than the MG in the GF and GJ tasks, but there were no between-group differences in the IP task.
- The BG used more higher-level processing strategies than the MG in all tasks.

6.3. The functions of the L1 in mental processing: A qualitative analysis

The data presented in the previous sections of this chapter focused on the frequencies of the occurrence of mental processing strategies, and the differences between both groups in this respect. Such analyses, based on an identification of strategies and a presentation of their frequency counts, are common in verbal protocol studies (e.g. Jourdenais et al. 1995). However, as noticed by Gu (2014: 76), "the motivation for a particular strategy and the quality, flexibility, and efficiency of strategy use are often more important than whether a strategy is used," and such information is not conveyed in a presentation of how often a given strategy occurred. These aspects of strategy use are investigated through qualitative rather than quantitative analyses, and such an analysis will be presented in this section. It will focus primarily on the functions of the L1 revealed by the processing strategies. The data, in the form of excerpts from the TAPs, their summaries and interpretations, will be organized and presented under six headings: L1 in understanding L2 input, L1 in highlighting form-meaning connections, L1-L2 comparisons, L1-based inferencing, L1 in seeking confirmation, and, finally, L1 in rule formulation and processing.

It is important to note that the excerpts from the participants' protocols will be presented in their original forms, with a frequent combination of both languages, Polish and English. Although the language of the protocols was Polish, the participants read out portions of the input in English, repeated certain phrases and applied a number of other strategies which involved the use of English. In the qualitative analysis presented in this section, the interplay of languages seems to aptly illustrate the dynamics of the mental processing involved, therefore, the excerpts have been retained in their original form instead of being translated into English. It also needs to be noted that there are no punctuation marks in the excerpts (they were not included in the original transcripts), and thought groups are separated by slashes.

6.3.1. L1 in understanding L2 input

As could be seen in the frequency counts presented in Tables A1 – A6, translation into the L1 was a frequently applied cognitive strategy, and although it was more prevalent in the BG for all tasks, MG participants made frequent use of it as well. The inclination to translate was evident in

each of the tasks and often indicated, especially during the input processing (IP) task, a drive to understand the meaning of the input. The translation strategies ('own translation', OT and 'just translation,' JT), were usually integrated with other strategies, such as 'reading aloud' in English or Polish (RA_ENG, RA_POL), 'signaling a lack of understanding' (NO_UND), 'code-switching' (CS), and others. This extract from protocol 1B3 illustrates the use of translation combined with other strategy use:

> *Szacuje się/ milion dolarów/ chyba był jakiś napad na bank/ milion dolarów zostało skradzione/ i cash co to jest cash nie wiem/ nie wiadomo how much exactly/ policja przyjechała/ zostały usłyszane strzały/ ostrzeżono nas not to move/ nie wiem o co chodzi/ ale ogólnie o napad na bank* (1B13)

This example shows how the learner tried to construct the meaning of the text. He/she did not focus on any grammatical features yet, and did not notice them. All the learner wanted to achieve was to get the general meaning of the input, and with the use of a few strategies (translation being the most important one), this aim is fulfilled. Once the meaning of the text was established, the learner could attend to the formal features of the highlighted structures. Such behavior was very often observed in the TAPs, and was typical in both groups. Naturally, in the BG, understanding the general meaning was much easier and such attempts at getting the general meaning of the input texts were frequently more successful in the BG than in the MG.

The following example illustrates a participant's struggling to construct the overall meaning of a part of a text on the basis of partial translations:

> *We would like to have a nice time/ nic z tego nie rozumiem/ coś z weekendem/ weather/ jeśli będzie ładna pogoda wyjedziemy* (1B3)

Interestingly, although the Polish translations were given to BG participants in the input texts during the IP task, sometimes the students did not read them as they were, but elaborated upon them and rephrased the Polish translations given in the brackets. This indicated that while the provided translation was noticed, it was not merely read out, but some cognitive processing immediately followed its noticing. In this way, the L1 clue provided in the input served a scaffolding role in performing fur-

ther mental operations on the target form. This is illustrated by the following example, when the student substituted the provided form "jeśli będzie padać" with his/her own translation "jeśli będzie deszcz jeśli będzie deszczowo." Here, two strategies were used, 'reading aloud in English' (RA_ENG) and 'own translation' (OT):

> *If it rains/ Jeśli będzie deszcz jeśli będzie deszczowo* (1B4)

Expanding the translations provided in the input was a common practice in the BG. This procedure often indicated that the students focused primarily on the meaning of the text, especially at the beginning of input processing. The following example from protocol 1B8 illustrates this:

> *We would like to have a nice time during the weekend but it all depends on the weather/ Czyli wyjedziemy ale zależy od pogody od tego jaka będzie pogoda/ If the weather is good/ Jeśli będzie ładna będzie ładnie* (1B8)

Some learners started processing the sentences in the GF and GJ tasks with a translation into Polish, as if they wanted to first establish the general meaning and later focus on the form in the task of supplying the correct form or making a grammatical judgment, as in the following example from the GF task:

> *Kate dostała piękne kolczyki od swojego chłopaka/ A nie, pierścionek/ Tu też było podobne/ Dostała otrzymała/ Jane was given/ Kate was given a beautiful ring* (2B10)

Student B10 started processing the sentence with a translation into Polish, which was only then supplemented with an application of other strategies ('referring to other parts of the input', REF, and 'comparing English forms', COMP_ENG) in order to infer the correct form of the target structure.

It was very common for the participants in both groups to translate sentences or their parts also in the GF and GJ tasks as they processed the L2 data and tried to understand the meaning of the sentences. In fact, situations in which a learner did not use translation when doing the task were exceptional. The following example comes from protocol 1M9, the GJ task:

> *If it rains we will stay at home/ Czyli jeżeli będzie padać to zostaniemy w domu/ Czyli tutaj będzie zdanie poprawne/ Bo jest if i will/ Czyli jest ten warunek* (2M9)

It can be seen that although the learner paid attention to the form ('if' and 'will'), the L1 translation probably helped him/her see the meaning of the sentence more clearly (in this example, the conditional aspect). In numerous cases, learners seemed to translate chunks of English texts in the GF and GJ tasks almost automatically, which seemed to be an integral part of their processing.

An important point to make is that the number of L1 translations performed by the participants was not always clearly evident in the protocols, because in some cases L1 translation was not quite successful, although it was clearly attempted by the learner. In such cases, the main impediment was lexical difficulty which prevented the creation of a proper translation. Sometimes the process of translation was abandoned on encountering an unfamiliar word, and sometimes an approximation was provided. In such cases, the strategy was still coded as OT or JT, and in cases when a learner gave a general interpretation of the meaning, although they clearly intended to provide a translation, the code INT_MEAN was used (for the strategy 'interpreting meaning'). There were cases, however, when translation as a strategy was not recorded, although it was clearly intended by the participants. Some of the participants relied on translations very heavily when they were provided in the input, but, due to linguistic (mainly lexical) problems, refrained from translating where they would have to provide the translations themselves. Below, two examples of protocol transcripts illustrating not quite successful yet attempted translations into the L1 are given.

> *What will he do/ Nie wiem co to jest/ Chyba coś w rodzaju i co z tego* (1B13)

In the above example, Student B13 was trying to translate a part of a sentence which did not contain the target form. Apparently, he/she wanted to translate as much as possible in order to understand as much as possible from the input. Such behavior occurred quite frequently in both groups, and it suggested that learners attended to the general meaning of the input first, before concentrating on the form of the structures. The following example, taken from protocol 2B2, is similar in this respect:

> *In the municipal park certain rules have to be followed/ Czyli w jakimś tam parku muszą być przestrzegane zasady/ For example dogs must be kept on a lead/ Psy muszą być trzymane na czymś na podłodze nie chyba nie/ Laughter* (2B2)

In the above example, however, it can be seen how the learner skillfully integrated the reading of the provided translations (RA_POL) with the attempts to translate the whole text, and in this way constructed the general meaning of the input.

6.3.2. L1 in highlighting form-meaning connections

L1-based cognitive strategies were used by the participants in both groups as a way of finding the form-meaning connections. In fact, it can be said that at least they tried to make the connections, struggling to understand the meaning of the sentence and, responding to their task instructions, trying to understand or provide, depending on the task, the correct grammatical form. For some students, this was a real challenge. There were numerous cases when translation into the L1 clearly underscored the form-meaning connection in the L2 forms, and students made sense of the meaning of a sentence and its structure by translating it. The following examples illustrate this:

> *Na przykład if w tym zdaniu jest tak/ if she earns more money she will travel/ więc to tutaj widać/ if she earns jeśli będzie zarabiała to wtedy pojedzie a jeśli nie to nie/ jedno zależy od drugiego* (1B4)
> *Sue and Peter not get lost if they have a map/ To będzie zgubią się jeśli mają mapę / Nie nie jeśli będą mieli to się właśnie nie zgubią* (1B7)

In the above examples, the use of various strategies, such as 'management' (MAN), 'selective reading aloud in English' (SRA_ENG), 'comparing English and Polish forms' (COMP_ENG_POL), facilitated the understanding of how the structure was formed, while the 'own translation' (OT) strategy was used to understand its meaning. Step by step, through conscious processing of parts of the sentences, the students arrived at an understanding of the form-meaning connections.

The following example illustrates a problem with arriving at the form-meaning connection. Here, the student (B3) focused on lexical translation

to understand the basic meaning of the sentence, and encountered a problem when trying to work out the meaning underlying the structure:

> *If it sunny my parents/ Sunny to jest słońce parents rodzice czy dziadkowie a beach to jest plaża/ Jak to zrobić żeby to pasowało/ Jak to ułożyć w dobre zdanie* (1B3)

It was clearly seen from the protocol examples, however, that establishing the form-meaning connections was significantly more problematic for the MG participants, although they made frequent use of the translation technique in the IP task. Although the above example comes from a BG student, in most cases, not surprisingly, the provision of ready translations as enhancement in the bilingual input appeared to be of considerable help for the participants. The following example from 1M11 protocol illustrates problems with understanding the meaning of the target structure:

> *My powinniśmy wyjechać na dwa dni/ jest słonecznie jest słonecznie/ If it rains we will definitely stay at home/ pada deszcz jesteśmy w domu/ We will organize a party if our friends agree to come/ mamy w domu przyjęcie* (1M11)

In the above example, the student clearly attempted to translate the English text into Polish; however, he/she failed to grasp the conditional aspect of the structure. Instead, the student translated parts of the sentences using the present tense. In the previous examples (1B4 and 1B7), the translations provided as part of the input served a facilitative, scaffolding role in grasping the form-meaning connections. Here (in 1M11's protocol), the meaning of the structure was not discovered by the student on the basis of the L2 examples provided.

Similar problems could be detected in another MG protocol, 1M10. During the GJ task, the learner made a correct judgment, but the way he/she translated the beginning of the sentence suggested that the meaning of the form had not been appropriately understood:

> *If it rains we will stay at home/ To już było/ Jeśli pada jeśli pada deszcz/ Teraz bardziej wszystko widzę wyraźniej/ Wszystko się zgadza* (1M10)

The conditional aspect of the structure was not reflected in the translation given in this example, although the learner accurately recognized that the form of the structure was correct. This example represents the problems with inferring the form-meaning connections on the basis of the enhanced input by MG participants.

6.3.3. L1-L2 comparisons

In some protocols, the L1 was used as a direct point of reference for comparing Polish and English structures, and for drawing inferences about the English forms on the basis of the equivalent Polish forms. In some cases, this strategy appeared to be effective; in these cases, it followed or was accompanied by other kinds of processing which led to a correct inference about how the target L2 form was structured. Some examples of an effective use of the 'comparing English and Polish' (COMP_ENG_POL) strategy are provided below.

> *My dad is very happy if I stop smoking/ Mój tata będzie bardzo szczęśliwy/ Będzie a więc will be very happy if I stop smoking/ Ok* (1B1)

This example comes from the GF task. Student B1 translated the sentence he/she created, and on the basis of the L1 sentence, he/she arrived at the correct L2 form. The form 'będzie' led him/her to self-correction and to a formulation of the future form 'will be.'

The following example is also taken from the GF task, Session 1:

> *A z tą pogodą if it is sunny if it is is/ A więc jeśli będzie słonecznie if it is sunny/ Moi rodzice will take us will take us to the beach/ If it is sunny/ Czyli taki przyszły/ używanie is jako będzie/ is sunny to będzie słonecznie* (1B14)

Apart from OT and COMP_ENG_POL, Student B14 used other strategies: 'repeating words' (RW_ENG), 'metalinguistic reasoning' (MLR), and 'inferring the form' (INF_FORM). The student collated the English and Polish forms ('is' and 'będzie,' 'is sunny' and 'będzie słonecznie') in a systematic manner in order to understand how the target structure was formed.

In a different example, taken from protocol 2B1, the IP task, the learner analyzed the form of the L2 structure, making explicit comparisons with the L1 in order to understand how it is constructed:

> *It is estimated/ Jest szacowane szacuje się/ It is not known/ Nie wiadomo/ It is not known/ Nie jest wiadomo/ It is to jest/ It is estimated it is not known* (2B1)

Student B1 also used the 'repeating words' strategy in both languages (RW_ENG and RW_POL), apparently trying to focus on the forms very consciously, and juxtaposed the English forms with their (not always quite correct) word-by-word Polish translations to see the L2 pattern.

In a similar manner, Student B6 applied the COMP_ENG_POL strategy as a way of analyzing parts of the target L2 structure. The following example comes from the IP task, Session 2:

> *But it is not known/ Nie wiadomo a raczej nie jest wiadomo nie jest wiadome/ Czyli jakby czas teraźniejszy z przeszłym/ shots were heard/ strzały zostały usłyszane/ We were told to lie/ To tak jakby my byliśmy powiedziani/ Dziwnie to brzmi ale o to tutaj chodzi/ we were warned not to move/ ostrzeżono nas czyli my byliśmy ostrzeżeni* (2B6)

Student B6's analytic approach to the input was revealed in the way he/she uses literal L1 translations in order to highlight the form of the L2 structure and to make sense of its underlying pattern.

Sometimes equivalents of very specific parts of a structure, e.g. function words, were sought. This was a highly analytical strategy, often requiring considerable effort from the participants, as evidenced in the following example: *If… jeśli… if she fails… jeśli ona zda… jeśli ona nie zda… fails… a więc if she fails the test jeśli ona obleje egzamin* (1B4). Interestingly, apart from making cross-linguistic (L1-L2) comparisons, sometimes two or more Polish translations of the target forms were collated and compared in order to infer certain regularities, primarily about the meaning of the L2 forms. This strategy can be illustrated by the following example: *Zostaniesz w Poznaniu… Mój tata będzie… w przyszłości… A więc tutaj my dad will be very happy* (1B13).

While discussing the use of the COMP_ENG_POL strategy, it also needs to be noted, however, that L1-based processing (e.g. literal, word-for-word translations) sometimes led to incorrect inferencing about the L2 form. In these cases, the learner relied too heavily on the L1, disregarding other clues in the input and not taking advantage of L2-based clues. This example, taken from protocol 1B11, the GF task, illustrates this:

> *Sue and Peter/ I tu jest też przeczenie z not get/ Czyli oni się nie zgubią/ Tu jest dwójka czyli będzie też don't/ Ale nie bo ma być czas przyszły/ Czyli będzie won't czas przyszły oni się nie zgubią/ Sue and Peter won't get/ Jeśli będą mieli mapę/ I tu będzie też czas przyszły/ jeśli będą/ If they will have a map* (1B11)

In this example, Student B11 constructed a wrong form of the L2 sentence as a result of comparing L1 and L2 forms. The future tense in the subordinate clause in the Polish sentence led him/her to copy the pattern in the target L2 form. While the L1 translation provided a correct clue for understanding the meaning of the L2 structure, it also led to negative transfer of the L1 form. The learner used a number of strategies in processing the text, e.g. 'referring to other parts of input' (REF), 'inferring the form' (INF_FORM), and 'metalinguistic reasoning' (MLR), and appeared to carefully and consciously process the input; however, he/she failed to make effective use of L2 clues in the enhanced input and relied too heavily on his/her own L1 translation. Another, similar, example comes from protocol 1M8, the GF task:

> *If I will eat too much I will/ Czy ma tu być will/ If I will eat too much/ No tak to mi pasuje bo to jest jeśli będę dużo jadła* (1M8)

Like 1B11, in this example, the learner overcame his/her doubt by comparing the English and Polish structures, and, as a result of the negative transfer, arrived at a wrong L2 form.

6.3.4. L1-based inferencing

All tasks, IP, GF and GJ, stimulated a high level of the use of inferencing strategies, 'inferring the form' (INF_FORM) and 'inferring the meaning' (INF_MEAN). Inferencing was made on the basis of different clues, both L1- and L2-based, and followed a wide variety of patterns. An interesting example of the use of the inferencing strategy came from Student B4, who, despite examining the input, still did not arrive at the right solutions till the middle of the GF task, when he/she suddenly experienced the 'eureka' phenomenon, finally noticing the form and correcting the previously filled in wrong forms. The following excerpt from protocol 1B4 illustrates this situation:

> *I will pass the exam if I will study hard/ Will study hard/ Tu był podobny przykład o egzaminie/ If she fails the test/ If she fails/ Czyli jeśli ona obleje test/ I will pass the exam if I/ Zdam jeśli ja/ Jak tu ma być/ Teraz wydaje mi się że to jest źle ale jak to powinno być/ If she fails the test she will have to retake it/ Wydaje mi się że właśnie że za dużo razy używałam will bo tutaj jednak tak nie jest/ W zdaniu musi być użyty will tylko raz/ Więc muszę zmienić całą konstrukcję/ I will pass the exam if I study if I study very hard/ If I study hard I will pass the exam* (1B4)

The above excerpt is an apt example of conscious processing of the input, with the use of both L1-based strategies ('reading aloud in Polish' (RA_POL) and 'own translation' (OT)) and L2-based strategies ('referring to other parts of input' (REF), 'repeating words' (RW_ENG), 'rereading' (RR)), which led to successful inferencing of the target form.

The following example also illustrates a mixture of different clues in successful inferencing of the correct target form:

> *Oni nie zgubią się jeśli będą mieć mapę/ Sue and Peter will not get lost jeśli będą jeśli będą/ Sue and Peter will get lost if jeśli będą mieć mapę/ Tutaj jest jeśli będzie miała dosyć pieniędzy/ If she has jeśli ona/ A tutaj są oni/ Czyli jeśli oni if they/ Będą mieć mieć mapę/ Jeśli oni będą mieć/ If they mmm/ Jeśli będą mieli mapę to się nie zgubią/ Nie zgubią się jeśli będą mieć mapę/ Zakręciłam się/ laughter/ Will get if they have/ Ale nie zgubią will not get lost if they have* (1B5)

In this example, student B5 made use of a number of strategies, such as: OT, SRA_ENG, RW_POL, CS, REF, COMP_ENG_POL, RW_ENG, SOU-TH, RT, HUM, INF_FORM. Conscious processing was well illustrated in the protocol; the learner paid conscious attention to forms, compared them, analyzed parts of sentences, and finally made inferences about the form with the help of conscious reasoning. The function of L1-based strategies should be highlighted here, because they appeared to play a prominent role in the processing. The learner translated parts of sentences, manipulated the translations, and repeated the translations with a focus on the meaning and form of the structure. The L1 clearly performed a facilitative function in processing the L2 material.

In the following example, the Polish translation present in the BG input was used by student B1 to refer to a similar sentence in the GF task and to correctly infer the target form. Interestingly, he/she compared the

Polish translations, attending to the meaning, before he/she focused on the L2 structure:

> *The Sistine Chapel/ Czyli on narysował/ Czyli jakby ona została namalowana/ Ameryka została odkryta/ A ona została namalowana/ Czyli też będzie was tak jak tam/ Was painted* (2B1)

Student B1 first inferred the general meaning (the INF_MEAN strategy), then he/she corrected himself/herself (COR), providing a proper translation of the structure (OT), referred to the input (REF), and compared Polish sentences (COMP_POL), which led him/her to correctly infer the target form (INF_FORM). Again, the L1 translations of the structures played a prominent role in the processing of the L2 material.

A similar example, in which a learner referred to L1 clues from the L1-enhanced input in order to make inferences about the L2 form in the GF task, comes from protocol 2B9:

> *The Sistine Chapel paint by Michelangelo/ Że on to namalował/ Tu jest że on został zaatakowany/ To analogicznie/ Obraz został namalowany/ Pieniądze zostały skradzione/ Będzie tu was czy were/ Were painted/ A może was painted* (2B9)

Referring to similar Polish forms in different parts of the material and the use of the COMP_POL strategy were frequent behaviors in the BG. In the above example, Student B9 systematically collated Polish translations ('został zaatakowany,' 'został namalowany,' 'zostały skradzione') to infer the target L2 form.

While L1-based strategies prevailed in making inferences about the forms and meanings of the structures, there were also a number of cases when correct inferences were made on the basis of L2 clues. The example from protocol 2B15 illustrates the COMP_ENG ('comparing English forms') strategy in figuring out the correct form with which to fill a gap. The only L1-based strategy he/she used was 'code-switching' (CS):

> *It believe that too much sugar is bad for health/ It must be said/ It must be believed/ Nie nie it believed that zbyt dużo cukru jest złe dla zdrowia/ Aha it is widely believed/ Czyli it is believed/ It is believed that too much sugar is bad for health* (2B15)

In this example, the main strategy effectively used by the learner was 'referring to other parts of the input' (REF), which helped him/her see the patterns of the structure.

Although the L1 was helpful in infering the forms in most cases, there were also examples in the protocols in which correct inferences were made based on L2 clues exclusively, and such behavior was observed in both groups. The following example from protocol 1B7 illustrates such a situation:

> *Alice look very good if she have a haircut/ If she goes to Paris she will climb the Eiffel Tower/ She will visit some interesting place if she has/ To jest tutaj tak jak porównam/ Alice will look very beautiful if/ If she goes she will climb/ Alice will look very beautiful if she has a haircut* (1B7)

In this example, the following strategies were used: RA_ENG, SRA_ENG, REF, MAN, INF_FORM. Student B7 frequently referred to the input for similar forms and managed to make comparisons between English structures in order to arrive at the correct solution in the GF task.

Although inferencing was often successful, a high number of instances of unsuccessful inferencing were recorded in the protocols as well. It needs to be highlighted here that in the MG, drawing inferences about the form on the basis of the input posed a major difficulty for many of the participants. They often disregarded the input or did not use it properly, probably due to problems with understanding it. In many cases, although a learner seemed to be using appropriate clues and going in the right direction, the final inference was incorrect. In one of the examples below, in protocol 1M12, the student used an L2 clue (by referring to a similar form in the input) to arrive at the right target form, but then, for an unknown reason (using the 'intuition' (INTU) strategy), changed his/her mind and returned to the previous wrong inferencing. The fact that the meaning of the sentence was not quite clear to the student may, to a certain extent, explain this confusion.

> *Nie rozumiem tego zdania coś o delfinach/ Może haven't protect białe delfiny/ Przeczenie w tekście jest don't/ If we don't protect the white dolphins/ Nie to mi nie pasuje/ If they haven't protect* (1M12)

In another example, from protocol 1M11, the learner struggled to make his/her own translations in order to do the GF task, largely disregarding the clues from the monolingual input. This resulted in wrong inferencing, as can be seen in the following excerpt:

> *Jeśli ja zdam egzamin ja będę studiował dużo ciężko/ Tam było jeśli ona if she passes/ Czyli będzie tak samo bez s/ I pass the exam if I will/ Ja będę się uczył/ If I will study hard* (1M11)

In the above example, the Polish translation did not make sense, because the 'if' clause and the main clause were reversed. This suggests that Student M11, perhaps due to confusion, did not attend to the meaning relationships within the sentence. Although he/she generally grasped the idea of condition, he/she was unable to make the correct inferencing on the basis of the form-meaning connections.

6.3.5. L1 in seeking confirmation

The use of the L1 often served the role of seeking confirmation of a student's processing, as an important signal that their reasoning was correct. The examples provided below indicate that the sense of the structure often became clear to the participants only when it was translated.

> *Jeśli Bob będzie chodził na swimming pool every day he will he will learn to swim/ Czyli jeśli Bob będzie chodził na basen codziennie nauczy się pływać/ Zgadza się* (1B1)

In protocol 1B1, the learner made use of 'code-switching' (CS) and 'own translation' (OT) strategies to infer the form in the GF task. Even when the correct form was already established, the learner still translated the sentence as a confirmation that it was correctly formulated. Sometimes the L1 translation was additionally manipulated by the learner in order to highlight the form and meaning of the structure, and this was a source of the final confirmation of his/her understanding of the structure. This strategy can be seen in the following example, taken from protocol 1B2, the GJ task:

> *If she doesn't get a good job in Poland she will go to London/ Czyli jeśli ona nie otrzyma dobrej pracy w Polsce pojedzie do Londynu/ (...)/ Ona pojedzie jeśli nie otrzyma pracy w Polsce/ To ma sens* (1B2)

In this example, student B2 rephrased the Polish translation, reversing the order of clauses, to get the final confirmation of the accuracy of the L2 sentence. The manipulation of the translation can be interpreted as a sign of the learner's conscious processing of the structure at the levels of both the form and the meaning. In the following example, the conscious processing of the target form is evident in Student B4's careful and gradual construction of the L2 sentence, in which the L1 played a significant role.

> *The letters/ Czyli listy są dostarczane o ósmej/ Czyli are are are/ laughter/ Czy może is/ The letters listy are delivered/ Tak jak removed/ Delivered at eight/ Są dostarczane/ Letters are delivered at eight/ A więc listy są dostarczane o ósmej* (2B4)

The L1's function as providing a confirmation at the end of the L2 form construction process was frequently observed in the protocols. In the above example, student B4 made use of a few strategies apart from OT: 'selective reading in English' (SRA_ENG), 'humor' (HUM), 'repeating words' (RW_ENG), 'doubt' (DOUBT), 'comparing English structures' (COMP_ENG), but the 'repeated translation (RT) strategy performed the function of providing the final confirmation of the appropriateness of the reasoning.

6.3.6. L1 in rule formulation

Most of the students focused primarily on the meaning of the texts in the IP task, adding a focus on the grammatical form once they had established the meaning. The IP task required the learners to formulate a rule (or reformulate it in their own words in the MG) underlying the regularities they noticed in the input. Generally, this appeared to be a difficult task. There were a number of instances when the learners formulated a rule about the meaning of the structures, while failing to formulate a rule about the form, as exemplified by the following protocol example:

> *Więc tutaj ogólnie osoby mówią o przyszłości o swoich planach/ Co się musi stać żeby były widoczne jakieś skutki/ I jest tutaj czas z will/ No tak chyba tak* (1B11)

Another example, taken from protocol 2B10, shows how the learner attempted to see the underlying rule, but only at the level of individual examples:

> *No jak tutaj jest o tym prezydencie/ Jego stan opisywany jest jako poważny/ W innym czasie jest ta wypowiedź/ Tamto wcześniej było w przeszłości/ A to jest teraz/ Jest leczony/ Jest opisywany* (2B10)

When trying to formulate the rule about the form and meaning of the Passive Voice, student B10 referred to particular examples, apparently being unable to draw conclusions about the whole input. Interestingly, he/she illustrated the rule with examples of Polish translations, not L2 examples. Moreover, he/she focused on the tenses present in the input, disregarding the passive aspect of the sentences. This was common practice in numerous protocols; very often, learners analyzed structures at the level of exemplars, and drew conclusions in relation to a particular sentence or text.

Generally, it was a challenge for the learners to see the underlying pattern of the target structures, as was evidenced in numerous TAPs. The task was more problematic for those learners who had major problems with understanding the meaning of the input and, consequently, to make the form-meaning connections. This situation, therefore, mostly concerned MG participants. The following example comes from protocol 1M1, the IP task:

> *Wszędzie jest osoba potem jest czasownik/ Na przykład tutaj I will spend/ Z kolei tutaj jest inny przykład/ Tu chyba w sumie nie ma żadnej zasady bo każde zdanie jest inne* (1M1)

Student M1 failed to see the underlying pattern of the First Conditional, despite having encountered numerous examples of the structure in the enhanced input, and despite having read the rule in English. Apparently, neither the highlighted examples of the structure nor the rule had been attended to and consciously processed. This was probably caused by a major problem with understanding the meaning of the texts, which made seeking the form-meaning relationships overly difficult and discouraged the learner from further attempts to look for patterns.

Although MG participants were provided with input which contained the grammatical rule in English, in most cases, they did not apply any strategies related to conscious processing of the rules. Some of them either disregarded the rule completely, or started reading it, but abandoned these attempts very soon. The prevailing strategies in processing the rule were connected with reading aloud (RA_ENG and SRA_ENG), which revealed rather shallow mental processing.

Few MG participants applied strategies indicating conscious processing when getting acquainted with the rule, which was reflected in some protocols, for example, in protocol 1M9:

> *Nie bardzo wiem nie rozumiem co to jest ten express i condition/ Ale to jest związane z sytuacjami które się mogą wydarzyć w przyszłości/ Z rezultatami/ Na przykład if it rains/ Albo if it is/ Tutaj na przykład jeśli pogoda jest dobra/ Korzystamy z tego will* (1M9)

The above example comes from the TAP produced when doing the IP task. Student M9 in his/her own words formulated a rule about the meaning of the First Conditional, stressing key elements of the form ('if' and 'will'), although no explicit rule about the form was formulated.

It was evident in the TAPs that learners in both groups quite frequently formulated their own rules, or 'microrules,' on the basis of the input. These rules were sometimes partially correct, sometimes quite wrong. For example, student B9 associated the '-ed' ending in the Passive Voice with a past tense, and referred to this microrule in later tasks, as can be seen in this example from the GJ task:

> *Hamlet is writing by William Shakespeare/ Czyli Hamlet napisany przez Williama Szekspira/ Jest napisany ale to było już kiedyś napisane/ Tam była regułka że odnosi się do przeszłości/ Ja bym zrobiła że było/ I to ing mi tu nie pasuje* (2B9)

This example shows that the microrules formulated during the IP task, on the basis of the available examples of the L2 structure, were often a basis for doing the subsequent tasks. This procedure was a frequent one in the protocols in both groups. In another example, also from the GJ task, Student M6 did not even read the English sentence, but used the 'just translation' (JT) strategy in judging the grammatical correctness of the sentence, and justified his/her decision by referring to a microrule:

> *Hamlet został napisany przez Williama Szekspira/ To jest niepoprawne bo w przypadku prawdy naukowej było has been więc tak powinno być* (2M6)

It can be seen that the learner primarily focused on the meaning of the structure, relying on a falsely formulated rule about referring to 'scientific facts.' Apparently, the passive aspect of the sentences was not noticed or processed by the learner, despite the numerous enhancements in the input.

Summing up this section, the following points can be made:

- Both L1- and L2-based clues in the input performed several facilitative functions in doing the tasks by the participants.
- The L1 helped learners understand the meaning of the input, make form-meaning connections, compare L1 and L2 forms, infer L2 forms, feel confident about their processing, and formulate rules.

6.4. Gap-fill task scores

Before the results of the GF tasks were submitted to statistical analyses, they were checked for normal distribution. A Shapiro-Wilk test ($p > .05$) and a visual inspection of the histograms, normal Q-Q plots and box plots showed that data sets were approximately normally distributed for both groups (BG and MG) for the GF results obtained in both sessions (Session 1 and Session 2). Session 1 data had a skewness of –0.087 (*SE* = .580) and a kurtosis of –0.946 (*SE* = 1.121) for the BG, and a skewness of 0.131 (*SE* = .580) and a kurtosis of –0.443 (*SE* = 1.121) for the MG. Session 2 data had a skewness of –0.239 (*SE* = .580) and a kurtosis of –1.393 (*SE* = 1.121) for the BG, and a skewness of –0.235 (*SE* = .580) and a kurtosis of 0.161 (*SE* = 1.121) for the MG. On the basis of these estimations, it was concluded that the GF task data had an approximately normal distribution.

6.4.1. Session 1 (First Conditional)

Table 20 presents the scores obtained by individual participants in both groups in Session 1, together with descriptive statistics for each group. As can be seen, the maximum score obtained in the BG and in the MG was 22, while the lowest score in the BG was 13, and in the MG it was 10.

Table 20. GF task scores and descriptive statistics for both groups (Session 1, First Conditional).

BG (*n* = 15)	Score (max. 24)	MG (n = 15)	Score (max. 24)
B1	22	M1	14
B2	16	M2	10
B3	14	M3	15
B4	19	M4	17
B5	13	M5	17
B6	19	M6	15
B7	17	M7	17
B8	18	M8	11
B9	15	M9	22
B10	21	M10	20
B11	21	M11	11
B12	17	M12	18
B13	20	M13	16
B14	15	M14	11
B15	18	M15	15
Mean	**17.67**	**Mean**	**15.27**
SD	**2.72**	**SD**	**3.47**

An independent-samples t-test was conducted to compare the mean scores obtained on the GF task in Session 1. There was a statistically significant difference in the scores for the BG and MG conditions; t (28) = 2.11, p = .044, 95% CI for mean difference .68 to 4.73. These results were further confirmed by a large effect size, Cohen's d = .8. This shows a significant practical significance of the results. The differences between the groups' scores are presented graphically in Figure 15.

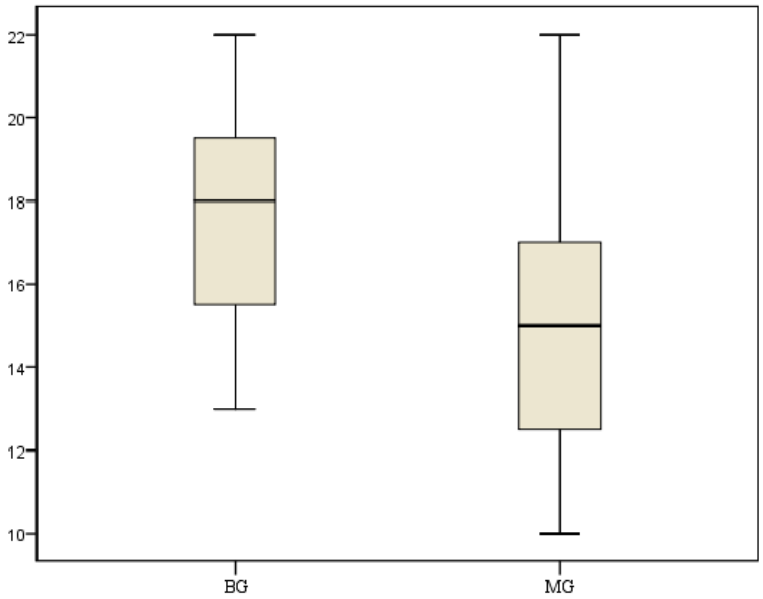

Figure 15. Boxplots of the GF task scores for the BG and the MG (Session 1, First Conditional).

It can be noticed in Figure 15 that the median value of BG scores was higher than in the MG, while that there was a significantly wider range of scores obtained by MG participants.

6.4.2. Session 2 (Passive Voice)

In Table 21, the GF task scores obtained by individual participants in both groups in Session 2 are displayed, together with mean and standard deviation values for each group. As can be seen, the groups' mean scores were higher than in Session 1, and the standard deviation was lower for the MG. The maximum score in the BG was 23, obtained by two students, B6 and B13, and in the MG the maximum score was 22, obtained by one student, M9. The lowest score was 16 in the BG and 14 in the MG.

Table 21. GF task scores and descriptive statistics for both groups (Session 2, Passive Voice).

BG (*n* = 15)	Score (max. 24)	MG (*n* = 15)	Score (max. 24)
B1	21	M1	19
B2	18	M2	14
B3	20	M3	16
B4	22	M4	17
B5	17	M5	19
B6	23	M6	19
B7	21	M7	17
B8	22	M8	20
B9	16	M9	22
B10	21	M10	21
B11	23	M11	17
B12	18	M12	20
B13	23	M13	19
B14	18	M14	17
B15	18	M15	18
Mean	**20.07**	**Mean**	**18.33**
SD	**2.37**	**SD**	**2.06**

The results of the independent samples t-test showed that the BG and MG mean scores for the GF task differed at the < .05 level of significance (t (28) = 2.14, p = .042, 95% CI for mean difference .07 to 3.39). On average, the BG scored higher than the MG on this test. The effect size for this result, as in Session 1, was also large (Cohen's d = .81).

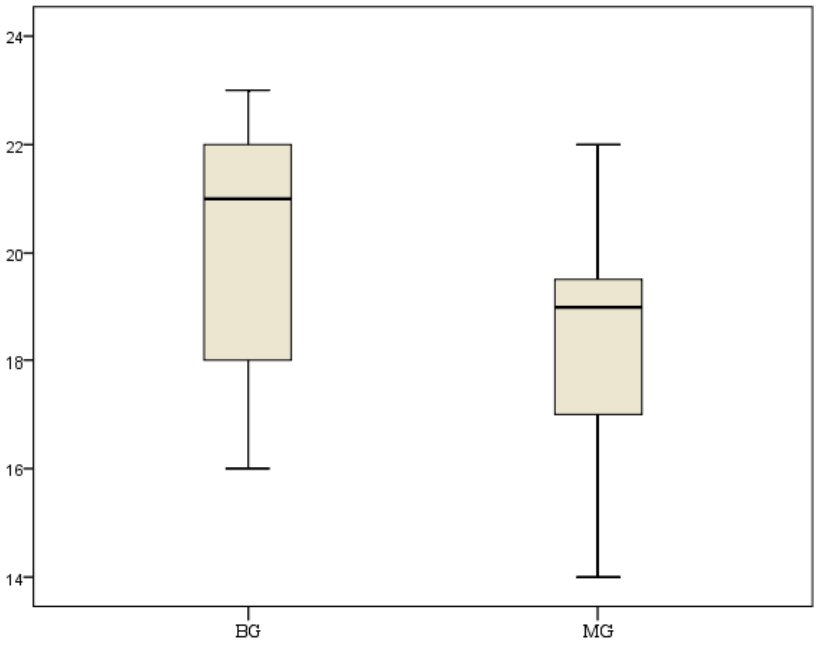

Figure 16. Boxplots of the GF task scores for the BG and the MG (Session 2, Passive Voice).

Figure 16 presents the boxplots of the GF scores obtained by both groups on the GF task. The median value is higher for the BG, and the ranges of the distribution of scores seem to be at similar levels in both groups.

Summing up the results of the GF tasks, it should be stressed that

- BG participants scored significantly higher than MG participants on the GF tasks in both sessions.

6.5. Grammaticality judgment tasks and confidence ratings

As was explained above (see 5.6.2., Figure 1, for a description of the study procedures), the GJ task was conducted twice at each session: at the beginning of the session, before doing the IP and the GF tasks, when it served as a pre-test, and at the end of each session, when the task was accompanied by a think-aloud procedure, and when the GJ task served as a post-test. Each of the sentences on the GJ task, apart from the 'correct/incorrect' options for the participants to choose from, contained a four-point confidence rating, on which the participants marked how confident they were about

their evaluations of the grammatical correctness of the sentences. In this way, each GJ task produced two scores: one for the accuracy of the judgment (i.e. the number of correct answers judging whether a given sentence was grammatical or ungrammatical), and a score of a confidence level. For confidence rating, a point was granted if a participant expressed confidence (marking either the 'I am almost sure' or the 'I am quite sure' option) for a correct judgment. If confidence was stated for an incorrect judgment, or if no confidence ('I don't know – I'm guessing' or 'I am not sure') was stated for a correct judgment, no points were given.

In this section, GJ task scores, both for the accuracy of judgments and for the level of confidence, will be presented, separately for groups and for sessions. Before any statistical procedures were applied to the raw scores, however, the data were subjected to tests of normal distribution. A Shapiro-Wilk test returned varied results for the GJ accuracy and confidence ratings scores at the pre-test and the post-test stages, some of which did not satisfy the criterion of normal distribution ($p < .05$). Similarly, the Q-Q plots and boxplots for some of the measures appeared to reveal a non-normal distribution of the data. In light of this, it was decided that nonparametric tests would be used to analyze the GJ tasks and confidence ratings results, the most appropriate of which were the Wilcoxon Signed Ranks Test to measure the differences between pre-tests and post-tests within the groups, and the Mann-Whitney U-test to compare the results across the groups.

6.5.1. Session 1 (First Conditional)

Tables 22 and 23 present the scores obtained by BG and MG participants, respectively, at the pre-test and post-test GJ task, together with gain scores in Session 1. The scores are presented in separate columns for GJ task accuracy and confidence ratings.

Table 22. GJ tasks accuracy scores and confidence rating scores for the BG, Session 1 (max. 12 for each category).

BG participants	Pre-test		Post-test		Gain	
	GJT accuracy	Confidence rating	GJT accuracy	Confidence rating	GJT accuracy	Confidence rating
B1	7	5	10	10	3	5
B2	6	4	11	8	5	4
B3	6	0	8	5	2	5

B4	4	4	12	12	8	8
B5	6	4	6	6	0	2
B6	8	6	12	12	4	6
B7	5	3	12	12	7	9
B8	8	5	12	11	4	6
B9	6	6	8	8	2	2
B10	7	6	11	9	4	3
B11	5	3	7	7	2	4
B12	5	2	9	9	4	7
B13	6	4	10	10	4	6
B14	5	3	11	8	6	5
B15	6	4	12	11	6	7
Median	**6**	**4**	**11**	**9**	**4**	**5**

According to Tables 22 and 23, GJ tasks accuracy scores at the pre-test ranged between 4 and 8 in the BG and in the MG, with 6 being the most frequent score in the BG and 7 – in the MG. The confidence rating scores ranged between 0 and 6 in the BG and between 1 and 6 in the MG. There was an increase in median ranks between the pre-test and the post-test in both groups. The range of scores at the post-test was 6 – 12 in the BG and 4 – 12 in the MG for accuracy, and 5 – 12 in the BG and 1 – 8 in the MG for confidence. In the BG, one participant (B5) did not show any improvement on accuracy, while all participants showed an increase in confidence ratings scores. In the MG, one participant's (M8) accuracy score was lower at the post-test than at the pre-test, and two participants' scores (M6 and M11) remained at the same level for both accuracy and confidence.

Table 23. GJ tasks accuracy scores and confidence rating scores for the MG, Session 1 (max. 12 for each category).

MG participants	Pre-test		Post-test		Gain	
	GJ task accuracy	Confidence rating	GJ task accuracy	Confidence rating	GJ task accuracy	Confidence rating
M1	5	4	11	7	6	3
M2	5	1	9	3	4	2
M3	7	6	10	8	3	2
M4	5	3	12	7	7	4
M5	7	4	11	7	4	3

M6	4	1	4	1	0	0
M7	8	4	12	7	4	3
M8	6	3	4	3	-2	0
M9	7	4	12	7	5	3
M10	8	5	12	8	4	3
M11	4	4	4	4	0	0
M12	6	5	8	7	2	2
M13	7	4	8	6	1	2
M14	8	5	9	7	1	2
M15	7	4	8	7	1	3
Median	**7**	**4**	**9**	**7**	**3**	**2**

First of all, a Wilcoxon Signed Ranks Test was run for both groups to see whether the differences between the pre-test and the post-test scores were statistically significant. As the data in Table 24 show, for Session 1, the pre-/post-test differences appeared to be statistically significant within each group, both for accuracy and for confidence ratings scores, with the post-test median ranks being statistically higher than the pre-test median ranks. The effect sizes were large: r = .61 for pre/post-test accuracy for the BG, r = .53 for the MG, and r = .62 for pre/post-test confidence ratings for the BG and r = .57 for the MG.

Table 24. The results of the Wilcoxon Signed Ranks Test for pre-/post GJ tasks differences for both groups (Session 1).

Value	BG		MG	
	Pre/post-test GJ task accuracy	Pre/post-test confidence rating	Pre/post-test GJ task accuracy	Pre/post-test confidence rating
Z	3.32	3.42	2.88	3.13
Asymp. Sig. (2-tailed)	.001	.001	.004	.002

A Mann-Whitney U-test was then conducted in order to compare the groups' scores for the pre-test and the post-test, as well as their score gains. The results of this analysis are presented in Table 25.

Table 25. The results of the Mann-Whitney U-test for between-group differences for the pre-test, the post-test and the gain (Session 1).

Value	Pre-test GJ task accuracy	Pre-test confidence rating	Post-test GJ task accuracy	Post-test confidence rating	GJ task accuracy gain	Confidence ratings gain
Mann-Whitney U	97	108	91	30.5	77	24
Z	-.659	-.194	-.909	-3.459	-1.497	-3.725
Asymp. Sig. (2-tailed)	.510	.846	.363	.001	.134	.000

According to the data in Table 25, no between-group differences for the pre-test appeared to be statistically significant, and the size effects were also minimal: $r = .12$ for the accuracy pre-test and $r = .06$ for the pre-test confidence rating. There was no statistical effect for the post-test accuracy score ($p = .363$, $r = .17$) or for the GJ task accuracy gain ($p = .134$, $r = .27$). Statistically significant differences were revealed for confidence ratings for the post-test ($p = .001$), and the effect size was large, $r = .63$, and for the confidence ratings gain ($p = .000$, $r = .68$). These findings indicate that in the pre-test, both groups were at a similar level concerning their GJ accuracy, and their confidence about their judgments was at a comparative level as well. At the end of the session, in the post-test, GJ accuracy rose significantly in both groups, and no significant differences were recorded across the groups. However, there was a significantly greater increase in the BG participants' confidence about the accuracy of their judgements in comparison with that of the MG participants, and for the post-test, the difference between the groups was statistically significant. Consequently, in Session 1, the between-groups differences in relation to the gain in accuracy judgments were not statistically significant, but statistically significant differences were recorded between the gain in their confidence of judgment, with the BG's confidence ratings gains being at a higher level than in the case of the MG.

Figure 17 presents graphically the distribution of the GJ task gains in Session 1, in terms of GJ accuracy scores and confidence ratings, for both groups.

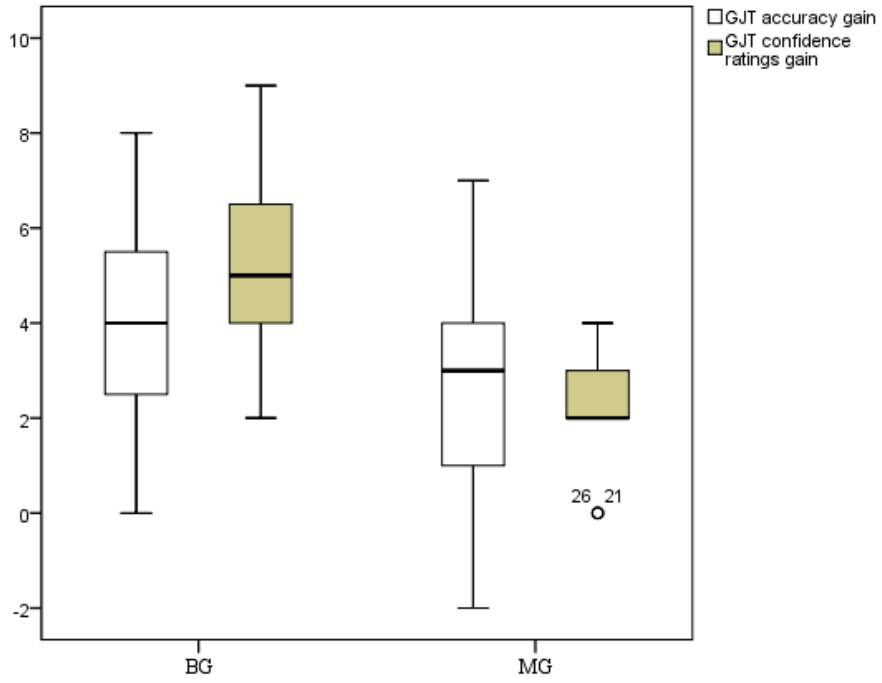

Figure 17. Boxplots of GJT accuracy and confidence ratings gains for Session 1 for both groups.

As can be seen in Figure 17, while the boxplots representing GJ accuracy gains do not differ considerably across the groups, the boxplots related to confidence ratings display a significantly different distribution of scores and median values.

6.5.2. Session 2 (Passive Voice)

Tables 26 and 27, respectively, display accuracy judgment and confidence rating scores obtained by the participants in the BG and the MG for the pre-test and post-test grammaticality judgment in Session 2.

Table 26. GJ tasks accuracy scores and confidence rating scores for the BG, Session 2 (max. 12 for each category).

BG participants	Pre-test		Post-test		Gain	
	GJ task accuracy	Confidence rating	GJ task accuracy	Confidence rating	GJ task accuracy	Confidence rating
B1	3	3	9	9	6	6
B2	5	1	8	4	3	3

B3	3	0	11	11	8	11
B4	7	5	10	8	3	3
B5	6	5	11	9	5	4
B6	7	2	12	11	5	9
B7	4	3	11	9	7	6
B8	7	5	9	9	2	4
B9	7	3	11	6	4	3
B10	8	7	11	10	3	3
B11	7	6	12	9	5	3
B12	6	3	10	9	4	6
B13	6	4	11	9	5	5
B14	7	3	9	8	2	5
B15	6	2	10	9	4	7
Median	**6**	**3**	**11**	**9**	**5**	**4**

According to the data presented in Tables 26 and 27, pre-test scores ranged between 3 and 7 in the BG and 4 and 9 in the MG for accuracy, and between 0 and 6 in both groups for confidence. Median ranks increased from pre-test to post-test in both groups. For the post-test, accuracy scores ranged between 8 and 12 in the BG and 9 and 12 in the MG, and confidence scores were in the range of 4 – 11 for the BG and 0 – 8 for the MG. All BG and MG participants increased their accuracy scores, but for two MG participants (M2 and M3) there was a decrease in confidence ratings at the post-test level.

Table 27. GJ tasks accuracy scores and confidence rating scores for the MG, Session 2 (max. 12 for each category).

MG participants	Pre-test		Post-test		Gain	
	GJ task accuracy	Confidence rating	GJ task accuracy	Confidence rating	GJ task accuracy	Confidence rating
M1	8	6	9	7	1	1
M2	5	1	7	0	2	-1
M3	6	5	8	3	2	-2
M4	4	4	8	8	4	4
M5	9	2	11	5	2	3
M6	6	4	8	6	2	2
M7	5	0	6	2	1	2

M8	7	6	11	7	4	1
M9	9	2	12	7	3	5
M10	9	4	11	7	2	3
M11	5	4	8	8	3	4
M12	6	4	8	6	2	2
M13	7	4	10	5	3	1
M14	7	3	9	6	2	3
M15	6	3	7	6	1	3
Median	**6**	**4**	**8**	**6**	**2**	**2**

A Wilcoxon Signed Ranks Test, whose results are displayed in Table 28, revealed statistically significant differences between GJ accuracy scores and confidence ratings at the pre-test and the post-test levels for both the BG and the MG. The post-test median ranks appeared to be statistically higher than the pre-test median ranks (Table 28). The effect sizes were large: r = .62 for pre/post-test accuracy for the BG, r = .63 for the MG, and r = .63 for pre/post-test confidence ratings for the BG and r = .53 for the MG. These data indicate a significant increase in the scores between the pre-test and the post-test within each of the groups.

Table 28. The results of the Wilcoxon Signed Ranks Test for pre-/post GJ tasks differences for both groups (Session 2).

Value	BG		MG	
	Pre/post-test GJ task accuracy	Pre/post-test confidence rating	Pre/post-test GJ task accuracy	Pre/post-test confidence rating
Z	3.42	3.43	3.45	2.92
Asymp. Sig. (2-tailed)	.001	.001	.001	.004

Parallel to the analysis for Session 1 data, a Mann-Whitney U-test was subsequently applied in order to measure the differences in scores for the pre-test and the post-test as well as the gain in scores between the groups. The obtained results are presented in Table 29.

Table 29. The results of the Mann-Whitney U-test for between-group differences for the pre-test, the post-test and the gain (Session 2).

Value	Pre-test GJT accuracy	Pre-test confidence rating	Post-test GJT accuracy	Post-test confidence rating	GJT accuracy gain	Confidence ratings gain
Mann-Whitney U	95.5	108.5	57	22	30.5	30
Z	-.723	-.169	-2.352	-3.808	-3.475	-3.479
Asymp. Sig. (2-tailed)	.470	.866	.019	.000	.000	.000

As indicated by the data presented in Table 29, the differences between the two groups were not statistically significant for the pre-test, neither for the accuracy scores (p = .470, r = .13) nor the confidence rating scores (p = .866, r = .03). This means that the groups were comparable at the pre-test level. At the post-test, however, the differences between the groups were statistically significant. According to the test, p = .019, and a medium effect size was observed, r = .43, for the post-test accuracy scores, and p = .000 and a large size effect (r = .69) were revealed for the post-test confidence ratings. Similarly, the differences were significant between the gain scores for each group: for the accuracy gain score, p = .000 and r = .63, and for the confidence ratings gain, p = .000 and r = .63. These data show that in Session 2, both the accuracy of GJ and the confidence of the judgments increased more significantly in the case of the BG as compared with the MG.

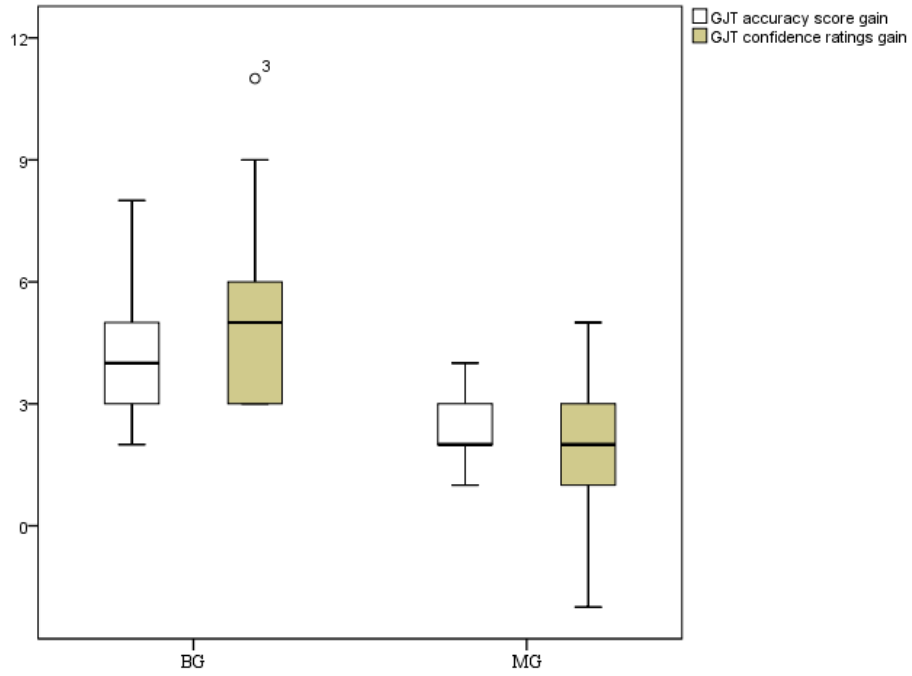

Figure 18. Boxplots of GJT accuracy and confidence ratings gains for Session 2 for both groups.

Figure 18 presents a graphic depiction of the GJ task accuracy and confidence ratings gains in scores for both groups. As can be seen, both the median points and the distribution of scores differ considerably between the groups.

The following points should be highlighted as the main findings presented in this section:

- In terms of grammaticality judgment accuracy and confidence rating, there was a significant increase between the pre-test and the post-test in both groups in both sessions.
- The BG outscored the MG on confidence rating level in Session 1, but the groups' accuracy on grammaticality judgment was at a similar level.
- The BG outscored the MG on both grammaticality judgment accuracy and confidence rating level in Session 2.

6.6. Grammatical sensitivity test

The grammatical sensitivity test was conducted as a measure of the participants' individual variation in terms of their ability to see relationships among words in sentences and to detect grammatical patterns. As stated in the previous chapter, it was assumed that since learners' cognitive processing was at the core of the present study, grammatical sensitivity, as part of their general language aptitude, was an appropriate individual factor to consider, because it could influence the participants' processing and performance in the tasks.

The participants' scores obtained on the grammatical sensitivity test are presented in Table 30.

Table 30. Grammatical sensitivity test scores for both groups (max. 23)

BG (*n* = 15)	Score	MG (*n* = 15)	Score
B1	10	M1	8
B2	7	M2	6
B3	11	M3	9
B4	14	M4	12
B5	9	M5	13
B6	12	M6	15
B7	11	M7	13
B8	14	M8	12
B9	11	M9	18
B10	12	M10	16
B11	15	M11	6
B12	10	M12	13
B13	12	M13	11
B14	7	M14	10
B15	11	M15	13
Mean	**11.07**	**Mean**	**11.67**
SD	**2.31**	**SD**	**3.44**

As can be seen in Table 30, the group mean score in the BG was lower than in the MG, but the difference was negligible. The higher standard deviation value in the MG revealed a greater individual diversity in this

group. According to Rysiewicz (2011), the mean score of this test conducted on a representative sample of 650 Polish adults in the 17 – 40 age range was 14.23, with *SD* = 3.39. In light of these data, the aptitude level in the present study sample seems to be relatively low.

In this sample, the highest score, 18 points, was obtained by participant M9, and two other MG participants scored above the mean level of the representative sample. In BG, the highest score was 15 (B11), and this was the only score above the 14.23 level. Two other BG participants scored 14 points.

As a measure of individual variation, the grammatical sensitivity scores were compared with other data elicited in the course of the study to trace relationships. Comparisons were made between the grammatical sensitivity test scores and: the numbers of lower-level processing and higher-level processing cognitive strategies in all tasks, metacognitive strategies at all tasks, GF task scores in both sessions, and the post-test GJ task scores for both sessions. Pearson's *r* was computed in order to assess whether correlations existed between grammatical sensitivity scores and these data sets. In Table 31, the results of the correlation analyses are displayed.

Table 31. Correlations between grammatical sensitivity, lower- and higher-level processing strategies, GF tasks and post-tests GJ tasks (data collated for both groups, *N* = 30).

Scores	Grammatical Sensitivity	
	Pearson's *r*	Sig. (2-tailed)
Lower-processing strategies IP task	–.28	.13
Lower-processing strategies GF task	–.16	.41
Lower-processing strategies GJ task	–.20	.28
Higher-processing strategies IP task	.19	.30
Higher-processing strategies GF task	.14	.46
Higher-processing strategies GJ task	.22	.24
Metacognitive strategies IP task	.82	.66
Metacognitive strategies GF task	–.14	.45
Metacognitive strategies GJ task	–.25	.18
GF task Session 1	.62	.00*
GF task Session 2	.62	.00*
Post-test GJ task Session 1	.17	.37
Post-test GJ task Session 2	.37	.04*

Note: Statistically significant correlations are marked with an asterisk (*).

It can be seen from Table 31 that very few correlations were revealed. There was a strong correlation between grammatical sensitivity scores and GF task scores at Sessions 1 and 2, $r(28) = .62$, $p < .001$ for both measurements. This suggests that grammatical sensitivity was a factor contributing to better performance on these tasks. One more significant, though moderate-level correlation was revealed between grammatical sensitivity scores and GJ post-test scores, but only at Session 2, $r(28) = .37$, $p = .04$. In the remaining pairs of data, no significant correlations were discovered.

It can also be added here that since no group of strategies was found to be significantly correlated with grammatical sensitivity, correlations were checked for several individual strategies, out of which 'reading aloud in English' (RA_ENG) at the IP task appeared to have a strong negative correlation with grammatical sensitivity scores, $r(28) = –.49$, $p = .01$. This means that the higher the grammatical sensitivity score, the lower the number of instances of reading aloud the input text at the IP task. Apart from this, the use of another cognitive strategy, 'metalinguistic reasoning' (MLR) at the IP task appeared to be moderately strongly correlated with grammatical sensitivity scores, $r(28) = .38$, $p = .40$.

The following main results should be summed up:

- No correlations were revealed between the grammatical sensitivity test scores and any groups of cognitive processing strategies.
- A positive correlation was revealed between the grammatical sensitivity test scores and the GF task scores.
- A positive correlation was revealed between the grammatical sensitivity test scores and the scores of one of the two GF tasks.
- A negative correlation was revealed between the grammatical sensitivity test scores and the use of the 'reading aloud in English' strategy in the IP task.
- A positive correlation was revealed between the grammatical sensitivity test scores and the use of the 'metalinguistic reasoning' strategy in the IP task.

6.7. Interview findings

This section will be devoted to a descriptive presentation of the results obtained in the debriefing interview conducted with each participant at the

end of Session 2. The findings concerned the participants' opinions about the usefulness of the different types of input enhancement, their evaluation of the BG and MG material, as well as their grammar learning strategies and their views on the role of the L1 in learning L2 grammar. Since the original versions of the participants' utterances give an important insight into their feelings about a given topic, the original (Polish) extracts from interviews, together with their English translations, are provided.

6.7.1. Learners' perceptions of the usefulness of the input enhancements

At the beginning of the interviews, the participants were presented with the input they worked on in Session 1 and Session 2 and were asked which features of the input they had paid attention to when working on it. The aim of this initial question was to find out whether their attention had focused on the input enhancements, namely input flood and underlining (in both groups' input), Polish translations in brackets (the BG's input), and the rule in English (the MG's input). Apart from reporting on what attracted their attention, the interviewees also expressed their perceptions about the usefulness of these forms of input enhancement.

All of the participants stated that the underlining of parts of sentences immediately focused their attention on them. They explained that "highlighted text simply catches your eye," and its value lies in the fact that "you know what to focus upon" and that it "gives a model of what the correct form looks like." Because of that, underlining was highly appreciated by the participants, who often said that without the target forms being underlined, they would not have known what was important in the texts. The following excerpt from utterances made by participant B8 illustrate the interviewees' opinions about the beneficial effects of underlining:

> Zwracałam uwagę, jak skonstruowana jest forma. Jak coś było podkreślone, wiedziałam, na co zwrócić uwagę. Muszę ogólnie wiedzieć, o co chodzi w strukturze i potem sobie tworzyć inne przykłady na tej podstawie [*I paid attention to how the form was constructed. If something was underlined, I knew what to focus upon. I need to know what a structure is about and then provide other examples on this basis*] (B8).

Participant B8 stressed that the highlighted forms were a source of information about the form of the structure, and a basis for a subsequent creation of his/her own sentences. Facilitated inferencing of the target forms on the basis of the underlined parts of input was also discussed by participant M5:

> Wyłuszczone poszczególne części zdania były pomocne, bo części podkreślone zawierały wszystkie te potrzebne rzeczy, osobę, operator, czasownik, jak wygląda cała ta konstrukcja. Słowa niepodkreślone też dawały kontekst. Gdyby nie były podkreślone, to czy tak łatwo byłoby wnioskować? Na pewno nie. [*The highlighted parts of the sentences were helpful, because they contained all the important things, the subject, auxiliary verb, verb, what the whole structure looks like. The words that were not underlined gave the context. If there had been no underlining, would it have been so easy to make inferences? I think not*] (M5).

However, although underlining was acknowledged to have attracted all learners' attention, two MG participants (M2 and M7) said that it had not necessarily been very helpful in the processing of the input, because still the meaning and form of the highlighted structures had not been clear enough to them. According to participant M7, the fact that the structures were underlined caused confusion in his/her processing:

> Podkreślenia przyciągały wzrok, ale w niczym mi to nie pomagało. To myliło, bo człowiek szukał zależności między jednym a drugim, a jej nie widziałam. Raczej patrzyłam na całość, bo te podkreślenia chyba były nie aż tak ważne. [*The underlining caught my eye, but it didn't help me at all. It was confusing, because you look for a link between one and the other, and I couldn't see it. I tended to look at the whole text, because the highlights were probably not so important*] (M7).

The above quotation shows the limitation of this kind of visual enhancement if no other guidance from the instructor is offered. MG input contained a rule in English, but it was apparently too challenging for participants M2 and M7.

The input flood was appreciated by 14 of the participants, according to whom the important function words stood out because they occurred in the input with high frequency. participant B6 said:

> Jak mam konstrukcję to zwracam uwagę na rzeczy które się powtarzają, tutaj było dużo powtarzających się słówek, na przykład 'if', 'will' w pierwszym tekście, a tutaj znowu 'was' i 'were'. Następnie analizuję formę jeżeli chodzi o czasowniki, w jakiej formie są czasowniki. Końcówka 'ed' wciąż się pojawiała, trudno nie zauważyć. [*When I have a structure, I pay attention to the things that are repeated, and there were a lot of repeated words, such as 'if', 'will' in the first text, and 'was' and 'were' in this one. Then I analyze forms of verbs. The 'ed' ending occurred all the time, it was difficult not to notice it*] (B6).

It can be seen in participant B6's account that the input flood led to not only noticing the target forms, but also to their further analysis within a broader context of its occurrence. The function words that were frequently repeated in the input helped to focus the learner's attention on the forms of the verbs, and to attempt to see a pattern in them.

Finally, the Polish translations in the brackets, as another kind of input enhancement available to the BG, were reported by all BG participants as noticeable and very useful. The main justification for the usefulness of the L1-based clues in the input, reported by practically all participants, was the fact that they made at least some parts of the input comprehensible. Most of the learners stressed that the translations clarified the meaning of the input at a lexical level, and that the overall meaning of the texts was easier to grasp thanks to them. At the same time, almost all of the BG participants noted that the L1 translations helped them establish the form–meaning connections in the target structures by making the underlined portions of text more accessible for further mental operations, such as comparing the Polish and English forms and drawing conclusions about the regularities in the patterns of the English forms. The following excerpt illustrates this point:

> Na pewno wyjaśnia sens zdania i wiadomo o co chodzi. Pamaga, bo wtedy też forma czasowników jest bardziej jasna. Jak się nie zna jeszcze struktur, to wtedy tłumaczenie że na przykład miała czy stało się coś od razu pokazuje jaki to jest czas i to bardzo pomaga. [*It certainly clarifies the meaning of a sentence and you know what it is about. It helps, because then the form is also clearer. If you don't know a structure yet, a translation that, for example, she had something or something happened immediately shows what tense it is, and it helps a lot*] (B14).

Participant B14 explained that understanding the general meaning of a given phrase allowed him/her to concentrate on its grammatical form. The learner stressed that the L1 translation offered useful guidance in working out the L2 structure. Similarly, participant B2 appreciated the facilitative role of the L1 translations as a scaffolding in working out the rule underlying the L2 structure:

> Często jak nie rozumiałam jakiegoś słowa to patrzyłam na to co było w nawiasach i na podstawie tego rozumiałam jakieś słowa i mogłam ułożyć sobie zdanie. Wtedy rozumiałam, jaki to będzie czas. Tutaj na przykład było jeśli będzie słonecznie to rozumiałam, że to są zamierzenia jakieś

> czy na przykład jeśli się nie pośpieszymy to się później spóźnimy. I potem już łatwiej się patrzyło na te inne podkreślone części, bo te zależności się powtarzały. [*When I didn't understand a word, I looked at what was in the brackets and on its basis I could create a sentence. Then I understood what tense it was. For example, when I saw "if it is sunny," I understood that these were intentions, or, for example, "if we don't hurry, we will be late." Then it was easier to understand the underlined parts, because these interdependencies were repeated*] (B2).

While the three abovementioned kinds of input enhancement (underlining, input flood and translation) were considered to be useful by practically all the participants, the same cannot be said about the grammatical rules in the L2 which was included in the MG input. Out of the 15 MG participants, six admitted that the rules had a facilitative role in the understanding of the form of the target structures, although all of these learners voiced some reservations about it, and nine participants said that the rule had not been helpful for them. The reservations expressed by the learners mainly concerned a difficulty at the lexical level, as in the following quotation from participant M12's utterance:

> Jeżeli chodzi o tę rameczkę, to w tym pierwszym więcej zrozumiałam, w drugim nie bardzo zrozumiałam regułkę, więc raczej nie wiedziałam, o co chodzi w tej konstrukcji. Na pierwszym spotkaniu dzięki temu że trochę zrozumiałam regułę łatwiej mi było zrozumieć konstrukcję. [*As for the box, I understood more in the first session, in the second one I didn't quite understand the rule, so I didn't quite know what the structure was about. In the first session, because I understood the rule, I found it easier to understand the structure*] (M12).

The above quotation shows that a general understanding of the rule posed a problem for the learners. Some of them conceded that if the rule had been in Polish, it could have been more useful. The other nine students, however, admitted to have disregarded the rules as being either too difficult or not useful. Participant M13 summed up her procedure in the following way:

> Na regułę nie zwracałam uwagi, bo nie rozumiałam za dużo. Ja muszę mieć konkretny przykład, regułki nie są dla mnie. Odnosiłam się do konkretnych zdań. [*I didn't pay attention to the rule, because I didn't understand much. I need specific examples, rules are not for me. I referred to specific sentences*] (M13).

It can be seen that the fact that the rule was in English discouraged participant M13, as well as other learners, from focusing on it; moreover, participant M13's learning style apparently predisposed him/her to look for examples instead of rules. It needs to be stated, however, that most MG participants expressed similar views on the usefulness of the rules in processing the input.

6.7.2. Learners' preferences for the type of input

In the subsequent part of the interview, the participants were presented with both kinds of input (for the BG and the MG) used in both sessions and asked which of these, with the L1 translations or with the rule, they would have preferred to work on and why. All 15 BG participants and 13 MG participants stated that they would have preferred the L1-enhanced input if they had had a choice. The statements were, in most cases, very clear and straightforward, with the use of phrases like: "I would definitely prefer the one with translations" (B1) or "Without a doubt, the one I worked on was better for me" (B5).

Some of the BG learners directly acknowledged that the grammatical rule in English would probably have been too difficult to follow, while the translations had made the meaning of the texts and the target structures clear. In this way, they confirmed the role in L1 translations as a substitute for a rule. Several participants explained that rules, especially in the L2, can be challenging to understand and to further exploit in working out the formal pattern of a structure and its meaning; a translation, on the other hand, made it possible not only to grasp the meaning but also to draw attention to the form of the target structures. This was the most frequently provided justification for the preference for the BG input, by both BG and MG participants. Participant B2 said:

> Na pewno ten z polskimi tłumaczeniami, bo jak teraz patrzę, to już widzę, że tej regułki na pewno bym nie rozumiała i nie potrafiłabym sobie wytłumaczyć. Wolę, jak jest po polsku, bo są w dobrej formie te nawiasy i wiem o co chodzi. [*Definitely the one with the Polish translations, because I can see now that I would surely not have understood this rule and I wouldn't have been able to explain it to myself. I prefer it to be in Polish, because the parts in brackets are in the correct form and I know what it is about*] (B2).

In a similar way, participant B11 also highlighted the fact that the translations into the L1 clarified the meaning of structures, and further elaborated on how the L1 translation helped him/her to consciously analyze the form of the structure. Moreover, participant B11 clearly stated that the L1-enhanced input gave him/her a feeling of security for further processing of the input, which was also suggested by other participants.

> Wolę pracować z takim, z tłumaczeniem. Jeśli wiem, co to oznacza, łatwiej mi zapamiętać. Na przykład jak tutaj było oczekuje się, it is expected, to dalej już pamiętałam, że musi być is i końcówka ed. A bez polskich tłumaczeń podanych nie wiem czy ja bym sobie przetłumaczyła to tak jak powinno być. Zdecydowanie tak jest łatwiej i czuję się bezpieczniejsza, że na pewno dobrze rozumiem. [*I prefer working on this one, with translations. If I know what it means, I find it easier to remember. For example, here it was "oczekuje się", "it is expected", and I further remembered that there has to be "is" and the "ed" ending. Without Polish translations given, I don't know whether I would have translated it correctly. It is definitely easier this way and I feel safer, because I certainly understand it correctly*] (B11).

Several other BG participants also discussed how the L1 translation, juxtaposed with the L2 structure, helped them work out and understand the pattern of the target form, through establishing and making sense of the form-meaning mappings. For example, participant B1 said:

> Jak czytałam ten tekst, to nawet jak nie znałam wszystkich słówek, to od razu wiedziałam, co znaczy ta ważna forma, na przykład "we will organize", "my zorganizujemy". Jak widzę to po polsku, to jest łatwiej to skojarzyć i ułożyć taką swoją regułkę. Jak już widzę taką zależność, to nie muszę tłumaczyć wszystkiego, po prostu jak widzę te trudniejsze formy po polsku i po angielsku to mi się rozjaśnia i się łączy. *[When I was reading this text, even though I didn't know all words, I knew what this important form means, for example, "we will organize" – "my zorganizujemy". When I see it in Polish, it is easier to make associations and create my own rule. When I see such a connection, I don't have to translate everything, simply, when I see the more difficult forms in Polish and in English, it gets cleared up and connected*] (B1).

Other learners also highlighted the fact that the BG input made them induce the underlying rule by themselves, which was more motivating, engaging and meaningful (e.g. "I prefer arriving at my own understanding,

without a rule given" (B13)). Interestingly, participant B6 remarked that the translations served as a natural 'bridge' between the learner and the text, and it facilitated understanding without distracting from reading the text.

As previously stated, as many as 13 MG participants stated they would have preferred working on the input with translations, and they repeatedly admitted that neither the rule nor the typographical enhancement in the form of underlining provided adequate help for them. Participant M2 explained how he/she struggled to work out the meaning of the First Conditional form and was not successful because of insufficient prompts in the input:

> Wolałabym z tymi tłumaczeniami. Bo nawet jak się trochę rozumie, to jakoś tak czuje się pewniej, że się na pewno dobrze to zrozumiało i w dalszych zadaniach można się na tym posiłkować i wiedzieć, że to będzie dobrze. Nawet bez wytłumaczonej tej zasady. Ja na przykład ostatnio nie złapałam co to znaczy 'if' i o co tam chodzi. Jakbym wiedziała, że to jest „jeśli", to już złapałabym sens tej gramatyki i byłoby mi o wiele łatwiej. [*I would have preferred the one with translations, because when you understand a little, you somehow feel more confident that you understand it correctly, and in further sentences you can build upon this and know that it will be correct. Even without the rule. For example, I didn't get what "if" means and what this structure is about. If I had known that it means "jeśli", I would have grasped the sense of this grammar and it would have been much easier*] (M2).

On the other hand, two BG participants (B10 and B14), while expressing preference for L1-enhanced input, admitted that drawing inferences on the basis of the rule and highlighted target structures would probably have been possible as well. Moreover, as mentioned above, two MG participants (M1 and M9) stated that they preferred the input they worked on, i.e. without the translations. Interestingly, participant M1 used the 'own translation' (OT) strategy extensively in the IP task. The arguments the students gave oscillated around a rule being a basis for understanding the form and meaning of a structure, upon which their own conceptualizations can be built. Participant M9 explained this in the following way:

> Uważam, że lepiej mi się pracowało z regułką. Jak jest reguła, to można na niej się opierać i domyślić się, jakie to są formy. Reguła dla mnie jest podstawą do zrozumienia gramatyki. Same tłumaczenia bez regułki

> za wiele nie dadzą. [*I think the text with the rule was better for me. If there is a rule, you can lean on it and infer the form. For me, a rule is the basis for understanding grammar. Translations alone, without a rule, don't give you much*] (M9).

Such voices, however, were exceptional, and it can generally be seen from the examples presented above that there was an overwhelming preference for the L1-enhanced input in the sample, irrespective of the kind of input they worked on in the tasks.

6.7.3. Learners' strategies of learning L2 grammar

As an extension to the discussion of the tasks that had been performed in the course of the study, the participants were asked about the grammar learning strategies they used in their own learning situations.

One of the most frequently recurring themes was a dislike for learning grammar and a lack of knowledge or skills to do so. As many as seven (out of 30) participants expressed negative attitudes toward learning L2 grammar. Participant B3 said, "I don't learn grammar, I don't know how." Other learners' reactions to the question about their preferred ways of learning grammar were similar ("Learning grammar is no fun" (B8); "Honestly, I've always hated learning grammar" (M7)). These students admitted, often with a feeling of embarrassment and guilt, that although they appreciated the role of grammar in language learning, working on grammar was their least favorite activity. Participant B2 reported his/her problems with discovering the appropriate grammar learning strategies and expressed a feeling of frustration at unsuccessful attempts to gain a knowledge of English grammatical structures:

> Przede wszystkim nie wiem jak się tego uczyć. Ja nawet umiem powiedzieć jaka to jest forma, ale jak mam coś powiedzieć, to właśnie nie umiem logicznie tego zebrać. Różne mam takie ćwiczenia i ćwiczę, ale nie wiem, czy to robię dobrze. To mi dużo zajmuje, a potem jak mam jakieś zdanie, to i tak nie wiem jaki czas wstawić. [*First of all, I don't know how to learn it. I even know what form it is, but if I am to say something, I can't logically put it all together. I have different exercises and I practice, but I don't know if I do it correctly. It takes a lot of time, but then, when I have a sentence, I still don't know which tense to use*] (B2).

Some students found it relatively easy to talk about their favorite ways of learning grammar, while others needed some prompting. When prompted, the participants gave examples of the strategies they used, and, altogether, a number of strategies were mentioned in the interviews. The most frequently discussed ones were connected with an analytical approach toward learning grammar. Most of the learners reported using strategies such as: breaking a form down into elements and analyzing its pattern, analyzing and creating tables with grammatical information about forms, doing activities from a coursebook (transformations, gap-fills), using metalanguage to classify elements of a form, creating simple sentences according to a pattern, coding parts of speech with colors, etc. An excerpt from participant B9's utterance aptly illustrates the use of such strategies:

> Zwykle sobie rozrysowuję konstrukcje, osoba, przykład zdania, zaprzeczenia, pytania, taki szablon jakby. Lubie matematykę, a tam do wzoru się podstawia i takie rozłożenie zdania daje taki wzór, tak mi się wydaje. To mi bardzo pomaga. [*I usually sketch out structures, a person, an example sentence, negations, questions, something like a pattern. I like math, where you use patterns, and breaking down a sentence creates a pattern, I think. It helps me a lot*] (B9).

Similarly, participant B10 described how he/she focuses on the form of grammatical structures in his/her usual grammar learning procedures. A strong reliance on formal properties of L2 structures is evident in this example:

> Lubię, jak jest wszystko jasne, przestrzennie narysowane, jakieś tabelki. Uczę się wzrokowo. Piszę sobie na kartkach sama te struktury w takich rzędach, żebym wiedziała, jak się te formy zmieniają. Zwracam uwagę na budowę struktury przede wszystkim. [*I like it when everything is clear, schematically presented, some charts. I learn visually. I write these structures in rows in order to see how they are transformed. I pay attention to the form of a structure first of all*] (B10).

Apart from analyzing the syntactic patterns of structures, the participants generally stated that they appreciated example sentences, either given by the instructor or instructional materials, or created by the learners themselves. Sentences containing a given structure were often mentioned as complementing, in a highly advantageous way, an analysis of its formal elements. According to participant B6, "rules are helpful, but examples

are the most important", and participant M15 said: "I never remember definitions, but I always remember example sentences."

A few of the learners (B4, B13 and M7) tended to make use of strategies with a more communicative orientation, stressing that they benefitted most from exposure to input and from examples which referred to real-life situations. Participant B13 gave examples of successful and unsuccessful strategy use that he/she had experienced. Exposure to written and spoken input, with a focus on the general meaning, seemed to be beneficial in terms of developing his/her command of grammar, while analyzing tables with grammatical information and rules was not effective:

> Na lekcji nauczyciele robią tabelki, regułki. W domu uczyłam się z tego, ale jak potem miałam tekst, to niewiele rozumiałam. Bardzo dużo mi pomaga czytanie sobie albo oglądanie seriali, słuchanie rozmów w internecie, to jest bardzo pomocne, tak poznaję gramatykę. [*In classes, teachers make charts and give rules. I used to learn from this at home, but then when I had a text, I still didn't understand much. Reading and watching tv series, listening to conversations on the Internet are very helpful, this is how I learn grammar*] (B13).

The above examples reveal some information about the participants' learning styles, and how they influenced their strategy choice. Participant B13, who apparently had a more holistic learning style, seemed to have discovered what kind of strategies worked for him/her, and knew that a detailed analysis of forms and rules would be less beneficial than exposure to input, even authentic. In a similar way, although with less elaboration, participant M7 mentioned that focusing on "grammatical details" is difficult for him/her, and "looking at sentences or texts" seems to be much more beneficial. Among the study participants, very few such strategies were mentioned; instead, some learners said that just reading or listening, without any explicit intervention, was not sufficient in their case.

Finally, it is worth emphasizing that translation into the L1 was the most frequently reported strategy. In fact, its use was either mentioned or discussed at length by all of the study participants. While two students (B3 and M6) said that they used it occasionally, only in a case of difficulty, the remaining learners admitted using it extensively, and several of the participants stressed that they always or almost always translated grammatical material (example sentences and parts of them, texts, and rules) when learning. Without translating, they argued, they would be at a loss,

not able to conceptualize the new structure or to do subsequent practice activities. For example, participant B1 said that translating a sentence into Polish was a necessary preliminary step before analyzing a structure more closely. Participant M12, whose utterance is provided below, explained how he/she inferred the meaning of new structures and saw the patterns in their forms on the basis of translation:

> Ja zawsze sobie tłumaczę na polski jak się uczę gramatyki, tłumaczę wszystko, i wtedy mogę zauważyć użycie i co znaczy jaka struktura. Później skupiam się na wnioskowaniu z tych zadań. Na przykład Jane obchodziła te swoje urodziny, więc porównuję z formą „birthday was celebrated" i to widzę. Widzę, jak się tej formy używa. [*I always translate into Polish when learning grammar, and I translate everything, and then I can see the use and the meaning of a structure. Then I draw conclusions from these sentences. For example, „Jane obchodziła te swoje urodziny", so I compare it with „birthday was celebrated", and I see it. I see how the form is used*] (M12).

It was interesting to note that for many learners, in fact for almost the whole study sample, translating into the L1 was a way of establishing the meaning of a structure, which led, through a conscious focus on it, to noticing the form and making inferences about it. Another example, from an utterance made by participant M8, clearly illustrates this:

> Jak czytam jakieś zdania, to sobie lubię zawsze na polski w głowie przekształcić, tak jak robiłam tutaj. Zawsze tak robię. Albo, jak nie znam jakiegoś słówka, to żeby chociaż poznać cały ten zarys tego zdania. I wtedy też na te czasy patrzę, jaki to jest. Jak czytam ogólnie, to nie zawsze zwracam na te różne czasy uwagę. Dopiero jak zaczynam przetłumaczać, to dopiero wtedy widzę, że coś tam jest. [*When I read sentences, I always like to transform it into Polish, just like I did here. I always do this. Or, if I don't know a given word, I want to understand at least the main meaning of the sentence. When I read in a general way, I don't always pay attention to these different tenses. Only when I start translating do I notice that something is there*] (M8).

Similarly, in the excerpt below, participant M10 provided an interesting account of how he/she relied on the L1 in understanding how an L2 structure works. This learner, like many other learners in the sample, claimed he/she evidently benefitted from a very conscious, step-by-step analysis of L2 structures. It can be seen from this example that making L1 transla-

tions was a necessary element of his/her grammar learning routines, and that it was integrated with other strategies, such as using colors, creating schematic notes and making drawings.

> Na pewno lubię jak jest coś wyraźnie napisane, jakieś kolory. Muszę mieć w języku polskim, potem w języku angielskim i muszę to mieć jakby ładnie schamtycznie rozłożone. Żeby wyraźnie było widać, często robię rysunki. Na pewno używam tłumaczeń. Jeżeli nie mogę czegoś zapamiętać, to ja potrzebuję takiego dokładnego dobitnego tłumaczenia w języku polskim. Wtedy forma ma dla mnie sens. [*I definitely like it when something is clearly written, in different colors. I need to have it in Polish, then in English, and I need to have it nicely and schematically laid down. To make it clearly visible, I often make drawings. I definitely use translations. If I have problems with remembering something, I need a literal straightforward translation into Polish. Then the form makes sense to me*] (M10).

Interestingly, as can be seen in the above quote, participant M10, among other strategies, reported making use of literal, straightforward translations in raising his/her consciousness about the target L2 form. In a less direct way, this strategy was also mentioned by some other participants. For example, participant M5 said, "I usually translate, and sometimes I translate word-for-word."

6.7.4. Learners' opinions on the use of Polish in learning English grammar

The final question in the interviews focused specifically on the students' evaluation of the use of the L1 (Polish) in learning L2 (English) grammar. As was revealed in the previous subsection, translation into the L1 was a frequently used L2 grammar learning strategy, generally very highly appreciated by the study sample. Some learners, while stating that they considered the L1 to be an essential basis for learning L2 grammar, were not able to provide specific arguments to support their claims. They only stressed that L1 translations helped them understand L2 structures and thus facilitate the process of learning. For example, participants B2 and B5 made general statements that the use of Polish drew their attention to the target English structures and clarified their meaning, which is illustrated by the following excerpts:

> Na polski jakoś samo mi się tłumaczy, nie potrafię inaczej. Jak mam polski i angielski, to więcej się domyślam, łatwiej mi jest. [*I automatically translate into Polish, I can't do it differently. When I have Polish and English forms, I can figure out more, I find it easier*] (B2)
> Zawsze na polski sobie tłumaczę, i w domu i na sprawdzianie, zawsze mi to dużo wyjaśnia. Mówię to samo po polsku i zaraz sobie skojarzę, że tu na przykład chodzi o przeszły czas czy coś tam. [*I always translate into Polish, at home and in a test, and it always clarifies a lot. I say the same thing in Polish and I immediately know that it is about a past tense or something*] (B5).

The above quotes, although relatively vague in terms of providing arguments for the usefulness of the L1 in learning the L2, reveal a strong tendency to refer to the L1 as way of deriving or confirming the meaning of L2 structures, and as a strategy for noticing their forms. As repeatedly stated by the participants, they seemed to greatly benefit from a number of L1-based strategies in their learning of L2 grammar.

Asked specifically about the usefulness of comparing L1 and L2 structures, even though the forms naturally differ across the L1 and the L2, seven of the participants could not see a justification for such a procedure. They argued that since there is little direct correspondence between any two grammatical forms in English and in Polish, comparing how they differ could be misleading for learners. Participant B13 said:

> To zależy, ale czasem jest zupełnie inaczej i to po polsku brzmi nielogicznie. Nie można dosłownie tłumaczyć, bo to nie ma sensu. [*It depends, but sometimes it's completely different and it sounds illogical in Polish. You can't translate literally*] (B2).

Other learners pointed to the fact that the form-meaning mappings differ too widely in the two languages, and thus comparing forms can blur meanings, while understanding the general meaning is most important in learning grammar. Participant M15's quote illustrates this:

> Nasze struktury nie pokrywają się z angielskimi, wiec lepiej nauczyć się reguł i nimi się kierować. W angielskim jest więcej czasów niż u nas, i wtedy nie przetłumaczy się dobrze, a przede wszystkim trzeba wiedzieć, o co chodzi. Może w prostych czasach to się da, ale w dalszych raczej nie. [*Our structures don't overlap with English ones, so it's better to learn rules and follow them. In English there are more tenses than in Polish, and then you will not translate it correctly, while first of all you need to know what the structure is about. Maybe with simpler tenses it is possible, but with more complex ones, rather not*] (M15).

Others (20 learners in the sample), however, considered explicit comparisons between Polish and English forms a beneficial strategy, and were able to give arguments justifying their point of view, and some students stated that they applied this strategy in their own learning of English grammar. It can be seen from the following examples that the participants appreciated referring to L1 forms as a useful resource in a detailed analysis of L2 structures. Participant B6 explained why a literal translation can make him/her conceptualize the target form:

> Tłumaczenie konstrukcji bezpośrednio daje zdanie po polsku czasem niepoprawne, ale takie wyjaśnienie na chłopski rozum czy rozłożenie na czynniki pierwsze to jednak pomaga. Widać dokładnie jak słowa składają się w całość. [*A direct translation of a structure often results in an incorrect Polish sentence, but this kind of common sense explanation or breaking a structure down into elements is helpful. Then you see how words are put together*] (B6).

Participant B6's approach toward consciously conducting detailed comparisons between the L2 and the L1 clearly points to his/her well-developed and carefully thought-out strategy use, as well as an analytical learning style. Such accounts were frequent among the study sample. Similarly, participant B14 provided a justification for conducting conscious comparisons between L1 and L2 structures. An application of this strategy helped him/her "make associations between English and Polish," and, eventually, better understand the L2 structure:

> Przy porównywaniu chodzi o to, żeby skojarzyć, że w polskim jest tak, a w angielskim jest tak. Czasem tak robię, bo trzeba to zrozumieć, pomaga mi to kojarzyć. [*Comparing structures is about making associations, it's like this in Polish and like that in English. I sometimes do it, because you have to understand it, it helps me make associations*] (B14).

Other learners gave similar arguments, stating that "a direct translation gives [me] the real sense, the pattern" (B9), and that it "helps [me] really understand English grammar" (M7). The fact that the Polish and English forms differ did not appear to be a problem for these learners, even if comparing forms can result in an 'improper' translation into the L1. According to participant B8:

> Porównywanie może zmylić, ale jeśli się człowiek wgłębi i zrozumie, to można dużo wyłapać. [*Making comparisons can be misleading, but when you go deeper and understand, you can notice a lot*] (B8).

Participants B11 and M5, giving examples from the input they were exposed to in the tasks within the study, illustrated how they benefitted from explicit comparisons of L1 and L2 structures:

> Porównywanie ma sens, ja tak często robię. Tak jak tutaj 'we were told' – 'kazano nam'. Nawet jeśli się nie mówi 'my byliśmy kazani', to przecież ja to zrozumiem. I o to mi chodzi, żeby wiedzieć, na czym to polega. [*Comparing makes sense, I often do it. Like here: 'we were told' – 'kazano nam'. Even if one doesn't say, 'my byliśmy kazani', I still understand it. And this is my point, to know what the form is about*] (B11).
>
> Tam było, że na przykład 'jeżeli będzie padać', to coś tam, 'pójdziemy na spacer'. Tu jest czas teraźniejszy, a jak tłumaczę, to jest 'będzie'. Ale to jest przez to łatwiejsze. Pomaga takie coś. [*In that example, it was 'jeżeli będzie padać, pójdziemy na spacer'. Here, there is a present tense, and in my translation, it's 'będzie'. But it's easier this way. It helps*] (M5).

The above quotes show very clearly that through an explicit strategy of putting the L1 and L2 structures together and paying attention to the differences between their forms and the form-meaning mappings in the two languages (e.g. the same meaning being expressed with the use of different tenses), the learners felt their awareness of the target structure was enhanced. The use of expressions such as "it makes sense" and "I know what the form is about," suggests that the participants highly appreciated the consciousness-raising power of L1-L2 comparisons in learning L2 grammar, and were convinced about their effectiveness.

Recapitulating the main findings of the interviews, the following points should be made:

- The participants expressed favorable opinions about the visual enhancements in the input and about the L1 translations.
- Almost all participants expressed preference for the bilingual input.
- The role of the L1 was highly appreciated as facilitative in learning L2 grammar.
- A number of L1-based strategies used by the participants in their learning of L2 grammar were listed.

6.7. Concluding remarks

In summary, the findings obtained through the study procedures and presented in this chapter seem to point to a significant role of the L1 in conscious processing of grammatical material in the L2. An analysis of the TAPs revealed a greater number of cognitive mental processing strategy used by participants in the bilingual group than in the monolingual group. This observation concerns both lower-level and higher-level processing strategies. Interestingly, translation, as a cognitive strategy facilitating conscious processing of the material, appeared to be applied in both groups at similar levels. A qualitative analysis of the protocols indicated the functions of referring to the L1 as revealing and strengthening the form-meaning connections of the target structures, facilitating inferencing, and providing a confirmation of learners' inferencing, which also led to a feeling of security and confidence. The bilingual group scored significantly higher on the gap-fill tasks in both sessions, which can be interpreted as a sign of more beneficial effects of their understanding of the structures at the input processing stage. The bilingual group achieved higher gains on the grammaticality judgment task in one of the sessions, and their gain in confidence ratings was significantly higher on both measurements. Finally, the value of the L1 as a consciousness-raising tool was confirmed in the debriefing interviews, when the participants expressed a preference for input enhanced with L1 clues and provided arguments why the use of L1-based strategies in learning of L2 grammar was considered easier and more effective.

These findings will undergo a more detailed discussion in the following chapter. The main results of the study will be summed up, and their relevance in the light of previous work on the topic of consciousness in learning L2 grammar will be further explored.

Chapter 7

The study: Discussion of the results

7.0. Introduction

The last chapter of this work is devoted to a discussion of the study findings obtained through the different elicitation methods and presented in Chapter 6. The main results will be summarized and interpreted with reference to each of the research questions. Moreover, the results obtained in the study will be discussed in relation to the theoretical concepts and the results of previous research outlined in the literature review of this work, in Chapters 1-4.

For clarity of the discussion, the present chapter is divided into six subsections, the initial five of which are parallel to the five research questions listed in Chapter 5. First, a discussion of the types and the frequency of mental processing strategies used in participants' verbal reporting will be presented, in the whole sample and across the two groups (section 7.1.) This will be followed by an examination of the functions of the L1 in doing the tasks (section 7.2.). The results obtained by the participants on the grammar tasks, gap-fill and grammaticality judgment tasks with confidence ratings will be discussed in section 7.3. An examination of the grammatical sensitivity scores and their correlations with other data will be presented in section 7.4. In section 7.5., the data on the participants' opinions about the L1 as a tool in doing the research tasks and in their own learning of L2 grammar will be discussed. Finally, section 7.6. contains a discussion on the limitations of the study and suggestions for further research.

7.1. The use of mental processing strategies

The investigation on the study participants' use of the mental processing strategies identified in the think-aloud protocols produced during the performance of L2 grammar learning tasks was connected with Research Question 1, which was formulated in the following way:

- RQ 1: What types of mental strategies denoting consciousness will be stimulated by processing input with L1 clues and with L2 monolingual clues, and how will the strategy use differ between the bilingual and monolingual groups?

The mental processing strategies, which constituted the basis for a number of relevant analyses in the present study, were elicited through a think-aloud method and were identified in the transcriptions of the verbal protocols produced by the participants in the course of doing the input processing, gap-fill and grammaticality judgment tasks. The strategies were assumed to reflect a number of cognitive processes that were stimulated by the research materials and tasks. It could, of course, be debated whether and to what extent the strategies identified in the think-aloud protocols were a direct reflection of the actual processes taking place in the learners' minds. This, however, redirects the discussion toward methodological issues of verbal reporting being a more or less direct measure of mental processing (summed up in Ericsson and Crutcher 1991). Nevertheless, following recommendations found in current SLA literature (Gass and Mackey 2017; Gabryś-Barker 2014; Leow 2015a, 2015b), it was assumed at the stage of the study design that the think-aloud method, despite its limitations, would be the best available option in an investigation of conscious processes involved in the learning of L2 grammar. The high number of identified strategies, and the clear patterns that could be detected among them, point to the robustness of this research tool. It can be thus concluded that it fulfilled its function of eliciting good quality, rich and interesting data on participants' mental processing.

Altogether, as many as 36 specific strategies were identified, of which the *cognitive strategies* constituted the largest group. The high number of diverse cognitive strategies used by the participants can be assumed to result from the considerable level of cognitive demands that they appeared to be faced with when performing the tasks, as well as the diversity in the mental processes involved. The cognitive strategies identified in the think-aloud protocols were categorized info five subgroups. One of them was connected with reading aloud, in Polish and in English, and a further distinction was made between reading the text as it was (or portions of it, such as sentences or other longer 'chunks' of the text) and

selective reading of the text; in the latter strategy, learners read aloud some parts (e.g. words or short phrases), and skipped others. This distinction points to the different mental processes applied in reading the treatment materials. It can be assumed that while just reading aloud may have reflected an undiscriminating verbalization of the input with very little selection of the parts worth focusing upon, reading aloud selected portions of the input may have indicated a higher level of mental processing. All of the strategies involving reading aloud were, however, further classified as reflecting a relatively low level of cognitive processing. Even if, with a certain level of probability, more processing was involved in selective than non-selective reading aloud, both pointed to rather automatic verbalizations of the written text. Similarly, another strategy group, connected with repetition of parts of the text in Polish and in English, was also classified as an example of lower-level processing strategies.

Five of the cognitive strategies were based on making references to the L1, which is worth stressing within the context of the main aim of the study. Some of them involved translation of words, phrases, sentences, or even larger parts of the texts both from English to Polish and from Polish to English. Because translation was considered an important strategy within the present study, and because it was performed in different ways, certain distinctions were introduced here. To this end, there was 'own translation,' which consisted in providing one's own translation of some portion of the input which had not been provided with translation or changing the translation given in the enhanced input, and 'just translation,' which occurred when a learner did not even read out the English version, but automatically gave its translation into Polish. Interestingly, there were learners who relied on this strategy very heavily, which suggested that only the full Polish version of the text gave them a feeling of familiarity with the content. The fact that translation was employed by some of the participants in a spontaneous manner upon approaching the input in English and doing the subsequent task could be interpreted as their natural inclination to use the translation strategy in learning tasks. This initial assumption was further confirmed in the interviews. Other L1-based strategies involved making comparisons between English and Polish forms, for example by deliberately repeating them one after another, in order to see patterns, which was sometimes reinforced by making

metalinguistic comments. Within the 'comparing English and Polish forms' strategy, sentences were often chunked and Polish equivalents were provided for the parts of sentences or phrases. Finally, the strategy of code-switching was applied, consisting in inserting Polish words into an English sentence and the other way round. Again, it must be stressed that this strategy was used very naturally, without any disturbance in the flow of thought. All of the L1-based strategies were classified as higher-level processing strategies.

The largest group of cognitive strategies was that involving reasoning and analysis, and it included processes such as paying attention to the form of structures (i.e., detecting them in the input and verbalizing them), making inferences about the form (i.e., trying to notice some patterns and regularities on the basis of the examples) and about the meaning (i.e., trying to explain what specific meaning a given structure denoted). The 'inferencing about meaning' strategy differed from 'interpreting meaning,' which consisted in merely providing the general meaning of texts or interpretations of a given situation. Other strategies within this group were: comparing two English structures and drawing conclusions on the basis of their patterns, making metalinguistic comments (with the use of terminology), applying intuitive feeling in trying to understand a structure (evident in utterances such as *I have no idea, but I feel this is wrong*), and making para-linguistic sounds, such as 'uhm,' 'mmm,' etc., which were assumed to indicate thinking. In the subsequent classification, paying attention to forms, making sounds and intuitive feeling were evaluated as lower-level processing strategies, while the remaining strategies in this group were classified as reflecting higher-level processing.

The final group within the cognitive strategies comprised behaviors in which the participants referred to information, for example, available in another part of the input (in order to find a relevant example of a similar structure), previous learning situations, for example at school, and grammatical rules that they remembered. Since looking for associations related to knowledge gained from different sources was assumed to require higher-level cognitive processing, these strategies were classified as such.

As mentioned above, another type of mental strategies identified in the TAPs were *metacognitive strategies*. There were eight of them and they fell into two groups, one connected with monitoring one's mental processing, and the other one – with evaluating one's processing. Manag-

ing text processing and providing explicit explanations of what a participant was doing belonged to the former group, while expressing confirmation, expressing doubt, expressing understanding or a lack of it, self-correction and evaluation of the level of difficulty of the task belonged to the latter group. Generally, the metacognitive strategies gave an insight into how efficiently the tasks were performed, as a wider repertoire of such strategies enabled a learner to exploit the input more fully.

Affective strategies constituted the final type of strategies. Only four such strategies were identified: reacting in a humorous way, expressing positive emotions, expressing negative emotions, and making comments about the input, usually connected with a similar situation, or with a participant's personal life. It was clear that some of these behaviors served the function of easing the tension connected with the context of the study, which was often associated with a testing situation. Some of the participants, for example, apologized for their 'poor' (in their own perception) performance, in this way expressing negative emotions. Attempting to make the situation more friendly was another function served by these strategies. For example, one participant jokingly used intonation which imitated singing; others laughed or made humorous comments about some of the sentences found in the input or made by themselves. Apart from these functions, however, the affective strategies also performed an important function of making the input (and the targeted structures) more meaningful, which, in turn, could influence the quality of processing, e.g. the level of understanding or the effectiveness of inferring information about the forms.

With regard to the types of strategies identified in the think-aloud protocols and their characteristics, it can be stated that many of the mental strategies applied by the study participants in the processing of the input and doing the tasks revealed at least a certain level of *consciousness*. This assumption is congruent with the view expressed by researchers, e.g. Leow (2000), that some kind of behavioral or cognitive change resulting from a task or a stimulus is an adequate operationalization of consciousness. The strategies, which reflected mental processing and cognitive processes, provided useful insights into the participants' conscious mental operations in performing the tasks. For example, *attention*, which is commonly associated with consciousness and considered a precondition for conscious processing, was apparent in several strategies, such as some of the reading aloud strategies, in which a learner chose to read certain

portions of the input. It was also evident in some repetition strategies, 'paying attention to the form,' and 'sounds indicating thinking.' *Noticing*, which involves a certain 'experience' of a given phenomenon (Schmidt 1994, 1995; Truscott and Sharwood Smith 2011), could also be traced in some of these strategies. It probably occurred when the learners paid focal attention to some features in the input, e.g. stopping and deliberately repeating a phrase, a word, or a morphological part of a word. The demands of all three tasks in the study stimulated the noticing of linguistic features by the participants. Importantly, noticing usually concerned focusing on single items, and thus was revealed in situations when the participants paid attention to certain features in a non-systematic manner. Noticing can, of course, be followed by other, deeper kinds of processing. *Understanding*, considered to be connected with higher levels of consciousness, is usually associated with processes such as analysis, comparing different kinds of information, reflection, metacognition, formulating and testing hypotheses, etc. It involves system learning and recognizing patterns among available clues (Schmidt 1994, 1995; Robinson 1995a). A number of strategies can thus be assumed to reflect consciousness at the level of understanding, for example, all strategies involving reference to the L1, such as translation, comparing forms in the two languages, most of the strategies involving reasoning and analysis, such as making interpretations and inferences about the form and meaning of parts of input, metalinguistic reasoning and explanations, etc. Moreover, strategies involving reference to information were also considered to denote consciousness at the level of understanding. Such strategies reflect higher-level complex processes typical of explicit learning, and denoting a higher degree of consciousness (Dörnyei 2009, R. Ellis 2009). Many of the higher-order processes, reflected in the mental processing strategies, can also be related to consciousness as *control*, typically associated with output situations, in which learners consciously control the use of strategies and deliberately decide which forms to use. They are 'effortfully involved' in a learning task, consciously monitoring their processing, analyzing the available clues, referring to previous knowledge, making and testing hypotheses (N. Ellis 2011; Leow 2015a; Schmidt 1994). In the study, the GF tasks and to a certain extent the GJ tasks (because the participants quite often chose to correct the wrong sentences) exemplify output situations which stimulated consciousness as control processing.

All of the identified strategies were present in the think-aloud protocols produced by participants in both groups, with the exception of the few strategies connected with reading aloud parts of input in Polish, which occurred only in the bilingual group. The analyses of the types of mental strategies applied by the participants and the frequencies of their use point to a considerable variation in the use of these strategies among the participants within each of the groups. This observation confirms that numerous individual factors, such as learners' cognitive style, motivation and involvement in the tasks, play a role in the way the linguistic data in the input are processed. Within the scope of the present study, it was not possible to control these factors. Since its main aim was to explore the role of the L1 in stimulating conscious processing of L2 grammar, and the absence or presence of L1 clues in the enhanced input was the main variable that distinguished the two groups of participants, the between-group differences in the use of the types of strategies is the main focus in the present discussion.

The tallied frequencies of the strategies applied in the tasks, as well as the analyses conducted in order to compare their application in both groups, showed that there were differences between the use of mental processing strategies between the groups, which could indicate the effects of the different kinds of input modifications on the participants' processing. One of the differences concerned the *volume of using cognitive strategies* by the participants in the two groups. Both the total number of uses of these strategies and the mean values indicating the use of particular strategies tended to be higher for the bilingual group. This means that the bilingual group participants used these strategies more frequently than participants in the monolingual group. Moreover, the strategy frequency counts revealed that similar patterns were observed within all tasks: while the bilingual group participants used more strategies in general (although sometimes the between-group differences in terms of the number of strategies used were minimal), there was more within-group variation in the monolingual group, and this concerned practically all strategy types. For example, in each task there were cases of participants who did not apply a given strategy at all (e.g. reading aloud, translation, etc.), and those who used it very extensively. The lower within-group diversity in the case of the bilingual group suggests that the patterns of processing the L2 material was more uniform in this group. This can be interpreted as possibly re-

sulting from the presence of the L1 clues, which gave the learners a useful tool to rely on in dealing with the tasks.

The most frequently used cognitive strategy in both groups appeared to be 'reading aloud in English,' which denoted a lower-level processing strategy consisting in just reading portions of the provided input. This shows that, in order to familiarize themselves with the material, most of the participants chose to read the texts and sentences aloud. The second most frequent strategy in the bilingual group, and the third one in the monolingual group, was providing one's own translation of parts of the input. This order was reversed for the strategy of inferring the L2 forms: it was the second most frequent strategy in the monolingual group and the third one in the bilingual group. This finding reveals highly similar preferences in both groups in terms of the most frequent strategy choice. However, as revealed by the total instances of the use of the strategies, which was much higher for the bilingual group, the *intensity* of their use was a differentiating factor. The total instances of using L1-related cognitive strategies also pointed to their more intensive use by the bilingual group.

The between-group differences lead to the formulation of certain conclusions concerning the effects of the different kinds of input enhancement on participants' consciousness in the processing of the grammatical material. One of the conclusions that can be drawn on the basis of the data is that since the bilingual group worked on L1-enahnced input, the presence of the translations embedded within the L2 input facilitated the participants' *comprehension* of the texts in general, thus facilitating the comprehension of the context. In turn, controlled processing of the target forms, typically associated with higher levels of focal attention and consciousness (as noted by, e.g., Frota and Brogsleithner 2013; McLaughlin, Rossman and Leod 1983), led to a more efficient discoveries of the *form-meaning connections* by this group. Previous research indicates that making input comprehensible, through L1 translations or other clues, can lower the *cognitive load* of processing linguistic information and facilitate a conscious, explicit focus on target forms, as well as on the process of explicit learning. A similar effect was observed in De la Fuente's (2009) study, in which learners themselves used translation in an explicit consciousness-raising activity.

It appears that it was easier for the bilingual group participants to discover the form-meaning connections by incorporating them, at the semantic level, into the wider context of the input. Moreover, the meaning of the highlighted examples of the target structures was already provided for them in the form of the translations, which served as useful *scaffolding* for making the form-meaning connections with regard to these particular forms; in this way, the translations apparently served a facilitating role, giving immediate information about the meaning of the structure conveyed. It is thus highly probable that the L1 clues, by lowering the cognitive burden of the demanding processing tasks, made it possible for the bilingual group learners to make use of a greater number of cognitive processing strategies, such as inferring the meaning and the form of structures, as both these strategies were used more frequently by the bilingual group in the three tasks. The L1 clues appeared to be helpful also in looking for connections between different parts of the input, and in making cross-linguistic (L1-L2) and intralinguistic (L1-L1 and L2-L2) comparisons. It can be concluded that drawing upon the translated, and hence, more comprehensible, parts of the input, the bilingual group participants simply found it easier to access an array of mental processes, such as making comparisons and inferences, hypothesizing rules and referring to them, and to make use of them in working out the patterns and regularities in the input. This was evident both in the strategy tallies and the qualitative analyses of the application of certain strategies. It can thus be assumed that the higher level of input comprehension achieved by the bilingual group facilitated their use of a range of strategies. As a result, they used the strategies more intensively, being encouraged to proceed with their reasoning, knowing that they had a basis for different, both L1- and L2-based ways of processing the input, and perhaps being more confident in trying out the different strategies.

A related finding, revealed by the analysis of the mean values of the frequency of use of all cognitive strategies, indicated that the following strategies were consistently (that is, in all tasks across the two sessions) used more frequently by the bilingual group participants: 'repeated translation,' 'own translation,' 'comparing English and Polish forms,' 'comparing Polish forms,' 'code-switching,' 'referring to other parts of the input,' and 'referring to the rule.' It can be seen, then, that most of the strategies which occurred in the bilingual group with higher intensity were connected with

the use of the L1 and involved making *references to L1* forms. All of these strategies belonged to the group of higher-level processing strategies.

This finding was further reinforced by the results of another analysis which showed that the bilingual group participants employed both lower-level and higher-level strategies more frequently than the monolingual group participants. However, the between-group differences were more apparent for higher-level strategies; they were significant for all three tasks in the study, while the between-group differences concerning the use of lower-level strategies were significant for two out of three tasks. Because lower-level processing can be associated with attention and noticing, while higher-level processing seems to be linked to understanding, this finding shows that the bilingual group displayed a higher number of instances of consciousness as noticing as well as of understanding, or at least at attempting to understand, the target structures. Again, their capacity to make use of these strategies can possibly be explained by their facilitated input comprehension leading to facilitated creation of form-meaning mappings. Apparently, they were able to engage with the input and the tasks at a deeper level, and involve more complex mental processes in working on the tasks. It can be assumed that higher-level processing strategies can be linked with higher levels of consciousness, although, as noted by Leow et al. (2014: 4), "depth of processing may not logically lead to a higher level of awareness." A potential correlation between the depth of processing and levels of consciousness can, however, be assumed, especially since other studies have revealed such links (Calderón 2013; Craik 2002; Tomlin and Villa 1994). Morgan-Short et al. (2012) found a correlation between depth of processing and comprehension of input, which clearly points to enhanced consciousness. Rosa and O'Neill (1999) discovered links between high levels of processing and consciousness at the level of understanding. Calderón (2013), on the basis of her study findings, concluded that in a low proficiency group, high depth of processing was correlated with levels of awareness and also with levels of intake. It can be cautiously assumed, therefore, that in the present study, the higher levels of processing reported in the bilingual group may reveal a higher level of consciousness of the target forms in the processing of the input and the performance of the tasks.

It should also be highlighted in the discussion on the frequency of occurrence of mental processing strategies that *L1-based strategies*, espe-

cially translation, were observed in both groups. Although in the bilingual group there were more instances of the use of such strategies, the monolingual group participants used them extensively as well. This is another important and, at the same time, a rather surprising finding of the study, because only the bilingual group participants worked on input enhanced with L1 translations. The input for the monolingual group contained only L2-based clues. However, the analyses revealed that 'own translation' and 'just translation' were the L1-based strategies that were applied with the highest frequency in the monolingual, not the bilingual group. Other L1-based strategies, such as 'comparing English and Polish forms,' and 'code-switching,' were also used in the monolingual group, but less frequently. The only L1-based strategy that the monolingual group participants hardly ever made use of was 'comparing Polish forms' and drawing inferences on the basis of such comparisons. These strategies, compared with plain translation, seem to be more complex and more demanding in terms of cognitive processing, and their lower occurrence in the monolingual group can be explained by insufficient scaffolding offered to the participants by the monolingual input. On the other hand, the findings show that translation into the L1 was one of the strategies for processing L2 input most readily referred to by the study participants. It is difficult to say whether this claim is true of L2 learners in general, but the heavy reliance on translation as a strategy for learning the L2 and its high appreciation by learners have been confirmed in other research as well (Fernández-Guerra 2014; Liao 2006; Scheffler 2013; Wach 2016). Therefore, the detection of numerous instances of translation and other L1-based strategies in the processing of L2 material confirms the claim made by Butzkamm and Caldwell (2009) and many other researchers that the L1 is L2 learners' ally, offering a foundation for inferring information about the L2. This is how learners often make sense of L2 forms – by translating them into the L1. This seems to be true especially of low proficiency learners, such as the participants in the present study; naturally, if they have few other resources to rely on, they refer to the L1 in working out information about L2 forms. This finding, which clearly emerges from the think-aloud data, is corroborated by a considerable body of previous research. For example, according to Lightbown and Spada (2006), learners naturally fall back on the knowledge of their mother tongue when they are trying to discover and understand the complex elements of the target language. It

can thus be concluded that the L1-based mental processing strategies, such as translation, making L1-L2 comparisons, making intralingual (L1) comparisons, and code-switching, served an important function in raising learners' consciousness of the target forms. Because of the L1-based enhancements available to the bilingual group participants, it was easier for them to use L1-based strategies effectively in the processing tasks. In this way, the L1-based strategies contributed to the overall greater occurrence of higher-level processing strategies applied by the bilingual group.

Another interesting point is that the bilingual group participants made *references to rules* in their processing more frequently than the monolingual group participants, although rules were only provided as part of the monolingual input. The fact that the bilingual group participants referred to rules in an attempt to make sense of the input can be interpreted as their ability to formulate their own rules on the basis of the available input. Although references to previous knowledge were quite frequently made by participants in both groups, the bilingual group participants often referred to rules they managed to formulate about the form and meaning of the target structures during the tasks. It is plausible that the translations provided in their input performed a facilitative function in the process of rule formulation, which proceeded alongside discovering the underlying patterns in the target forms. This finding was also confirmed in the qualitative analysis of the functions performed by the L1, and will be mentioned again in the following section. It is worth recalling that some researchers (e.g. Hentschel 2009) agree that translation into the L1 can serve a similar function as a metalinguistic rule, because it makes a structure transparent to learners. It is thus likely that the translations in this study performed such a function, largely facilitating the bilingual group participants' formulation of their own rules. These rules, subsequently, constituted a valuable source of information for further processing of the material by the participants, for inferring the form and meaning of other examples of the target structure use, and in doing the subsequent tasks. The construction of learners' own rules, or 'micro-rules,' on the basis of input, is a phenomenon described in SLA literature, and defined by Dulany, Carlson and Dewey (1984: 541) as "conscious rules, each of limited scope, and many of imperfect validity." The formulation of micro-rules by learners was found in other research as well. For example, in Hamrick's (2014) study, learners' formulation of micro-rules for syntactic structures was interpreted as important evidence of the

acquisition of conscious L2 knowledge. Similarly, in the present study, this phenomenon can also be interpreted as an indication of the participants' conscious processing of the input. Whether these micro-rules formulated by the learners themselves were correct or not is a different issue. Since they were created spontaneously, during learners' involvement in a cognitively challenging task, their accuracy was very often partial, or they were simply wrong. However, the very attempt to formulate a rule, even a partially correct one, can be taken as a sign of higher-level mental processing indicating a certain level of consciousness.

Finally, it should be noted that no significant between-group differences were recorded with regard to the frequency of use of *metacognitive* and *affective* strategies. The participants in both groups monitored, regulated and evaluated their own processing in similar ways, and the presence or absence of L1 clues in the input was not a differentiating factor at the level of metacognition. This statement can be made on the basis of the quantitative statistical analyses comparing both groups' performance. It can be noted, however, that there were more expressions of understanding and confirmation at the metacognitive level in the bilingual group's processing. Qualitatively, this could indicate a higher level of consciousness as understanding, also revealed in the aforementioned analyses of cognitive strategy use. This seems to be confirmed by the fact that 'expressing doubt' was the most frequently used metacognitive strategy in the monolingual group, followed by 'managing text processing.' In the bilingual group, this order was reversed, which shows that doubt was expressed frequently in this group as well. However, the third most frequent metacognitive strategies were 'expressing a lack of understanding' in the monolingual and 'confirming one's reasoning' in the bilingual group. This could be linked in some way with the facilitated comprehension of the input in the bilingual group, and a higher challenge in this respect for the monolingual group.

With regard to affective strategies, despite a more frequent use of humor in the bilingual group, a lack of statistical significance for the frequencies of the use of affective strategies showed that the two groups expressed and regulated their emotional states in comparable manners during all tasks throughout the study. Positive and negative emotions were expressed by the participants in both groups with similar intensity. Commenting on the texts and tasks was the most frequently used affective

strategy in both groups. Generally, few affective strategies were used, probably because of the format of the study, which was primarily targeted at eliciting cognitive processes.

7.2. The functions of the L1 in doing the tasks

An analysis of the functions that the L1 served in the performance of the tasks by the participants was stimulated by Research Question 2.

- RQ 2: What functions will the L1 serve in processing the input, and in doing the grammatical tasks?

The qualitative analysis of the think-aloud protocols transcripts cast new light on some of the findings that were revealed in the quantitative analysis of the data. This analysis addressed the concerns voiced by other researchers (e.g. Gu 2014) concerning the insufficiency of frequency counts and statistical analyses in verbal report research. A qualitative investigation on the functions of the L1 on the basis of the mental processing strategies to a large extent complemented the findings obtained through the quantitative analysis and allowed for a more comprehensive interpretation of the data.

Facilitation of *understanding* of the input texts and sentences was definitely the most frequent and the most obvious L1 function in doing the tasks. The frequency counts discussed in the previous section underscored the prevalent and intensive application of L2-L1 translation, as well as other strategies (e.g. 'interpreting meaning' and 'inferring meaning'), by participants in both groups, which displayed their strong focus on the meaning of the texts. The drive to translate the input or portions of it was evident in all tasks, and besides serving other functions, such as facilitating the analysis of the form of structures, translation primarily performed the function of facilitating *input comprehension*. It was clear from the think-aloud protocols that processing the input for meaning was a pre-requisite for processing it for form, and the participants first struggled to understand the meaning of the whole text, sentences, and phrases. This kind of focus is in line with the 'primacy of meaning' principle, which is part of the Input Processing theory by VanPatten (2004, 2007), discussed in detail in Chapter 1. There were multiple ex-

amples in the protocols illustrating how the participants tried to infer the meaning of the whole texts, or at least of some key items that would allow them to understand more. Naturally, the L1 clues embedded in the input facilitated the comprehension of the texts for the bilingual group, allowing its participants to infer the meaning of other parts of the text, to which translations were not provided, in a much more accessible manner. This is important, because, as stated by VanPatten (2008: 59), explicit information that learners obtain through referential activities in processing instruction aids acquisition through promoting comprehension. L1 translations can thus be treated as such 'referential activities,' helping learners understand the meaning of sentences and their parts. There were numerous examples of such a use of the L1 clues. The qualitative analysis thus confirmed the 'primacy of meaning' principle as a natural and spontaneous tendency to focus on the meaning in getting acquainted with input in the L2. This finding thus corroborates the extensive body of research conducted on the effectiveness of processing instruction (e.g., Benati and Lee 2008; Cho and Reinders 2013; VanPatten 1990, 2002, 2004; VanPatten, Williams and Root 2004).

The comprehension of L2 input as a condition for its effective acquisition, as well as the links between comprehension and consciousness in L2 learning, are highlighted by Truscott (2015a). He stresses the role of 'enhancement for comprehension' in clarifying the meaning of the target structures, and argues that comprehension leads to the development of the 'language module.' Discussing the ways in which this can be achieved, he writes,

> The enhancement (…) could be provided in a variety of forms, including an explicit statement of the meaning of the sentence, a picture showing a woman kissing a man (or a demonstration) or a story that gives disambiguating information. In any case, the added input could help with the perceptual process and thereby with learning (…). In enhancement for comprehension, the issue for consciousness is awareness of meaning, in the standard indirect sense in which we can be aware of conceptual representations. The most consistent involvement of awareness here is likely to be the feeling of rightness that accompanies successful comprehension, or the feeling of wrongness when comprehension fails. (Truscott 2015a: 192)

Truscott goes on to state that this feeling of successful comprehension is likely to lead to successful acquisition, and higher levels of 'awareness of meaning' are closely connected with the development of conceptual knowledge about L2 structures. This quotation seems to be relevant in the context of the present study, because the L1 clues embedded in the input apparently served as the kind of beneficial enhancement which led to successful comprehension, and to the development of the awareness of meaning in the learners, upon which further, form-oriented processes could be based.

Furthermore, it was revealed by the qualitative analyses of the think-aloud protocols that access to L1 enhancements in the input contributed to more effective uses of other related strategies in the bilingual group. The protocol transcripts provided numerous illustrations of how translation was integrated, often highly successfully, with other text processing strategies, such as reading aloud (in English and in Polish), repeating words, and interpreting meaning. The bilingual group participants' use of translation was thus not only more frequent, but also more efficient than the use of their own translations by the monolingual group participants. It is possible that the scaffolding function of the L1 input enhancements, discussed in the previous subsection, made it easier for the bilingual group participants to understand or interpret the meaning of the texts, while the monolingual group participants often unsuccessfully struggled to make sense of them. It was evident in the protocol excerpts that the understanding of lexical items often turned out to be an obstacle to efficient processing of the input, and this problem was the most prevalent in the monolingual group. The function of the L1 in paving the learners' route to lexical and syntactic comprehension is often discussed in the literature (e.g. De la Fuente 2015; Rivers 2011b; Turnbull and Dailey-O'Cain 2009) as facilitating L2 learning. In the present study, in was observed that those learners who were not successful in understanding the texts correctly, often due to lexical problems, found it extremely challenging to interpret even the main meaning of the input, and, consequently, to process the targeted grammatical structures. In such cases, reading aloud and other lower-processing strategies were sometimes used as a substitute for more efficient higher-level processing. This kind of information was not revealed by the frequency counts in analyzing verbal reports. The qualitative analysis showed that sometimes the lack of a strategy could also indicate

some kind of processing, for example, lower-depth and less efficient processing. Following this line of reasoning, it can be concluded that the translation strategy could have been even more frequent, particularly in the monolingual group, had the learners been able to understand more input. It can also be concluded that successful translation helped learners comprehend the input, opening up a range of other, form- and meaning-oriented mental processing necessary for an efficient focus on the target structures. The effects of the use of translation for encouraging learners' focus on linguistic forms have also been reported in other studies. For example, Källkvist (2013) reported higher levels of 'languaging' in oral interactions as a result of introducing the translation technique. Kupferberg and Olshtein's (1996) and Kupferberg's (1999) studies are worth mentioning here as well, because they made use of L1 clues as input enhancement. In these investigations, the L1 clues stimulated learners' cognitive processing of L2 grammatical forms.

The analysis of the protocols revealed that the very activity of translating portions of L2 input into the L1 involved some kind of *internal operations* at a higher level of processing. This was seen, for example, in the bilingual group participants' protocols from the input processing task (but also, to a lesser extent, in the remaining tasks), when the learners modified the existing translations, repeated and paraphrased them, read selected parts of them and added their own versions of the translations. It can thus be seen that such an activity revealed a certain level of conscious cognitive reasoning involved in the task of translation, and highlighted the role of translation as a strategy for performing conscious operations on L2 input. The translations in the input attracted learners' focused attention, and stimulated the inference of the meaning of phrases or texts. Again, it must be stressed that this kind of processing was more prevalent in the bilingual than in the monolingual group for the reasons outlined in the above sections (i.e., easier access to higher-level processing, the scaffolding function of the L1 enhancements).

Another very important function of the L1 revealed by the think-aloud protocols was that of enhancing the *noticing* of the target structures in the input. As has been stated above, during the process of trying to comprehend the input at the initial stages of input processing, the learners often did not pay attention to the form of the target structures; in many cases, they did not seem to detect them at all. In the gap-fill and grammaticality

judgment tasks, translation into Polish often assisted learners' mental processing at the initial stages of familiarizing themselves with a given sentence, as this was the way to arrive at full comprehension of the meaning of a sentence before processing it further. Interestingly, the frequent use of the 'just translation' strategy shows that translating a sentence into the L1 often seemed to be automatic behavior, a pre-requisite for any subsequent processing. However, because of the task demands the subsequent processing involved paying attention to the form and inferring information about how a given structure is formed, leading to decisions in the gap-fill and grammaticality judgment tasks about what form should be provided or about the grammatical correctness of sentences. It can therefore be concluded that one of the functions of translation was that of a tool offering scaffolding for attending to, noticing, and further analyzing formal features of the target structures. It is possible that the noticing of forms was affected by the process of translating. As discussed by Philp (2013) and Izumi (2013), and as was revealed in their studies, the emergence of noticing largely depends on task specificity, that is, whether learners are induced to notice the target forms, and by features of the input itself: its difficulty, the frequency of the occurrence of forms and its relevance to the learner. Inducing learners to notice, alleviating the difficulty of input, and increasing its relevance to the learners could have been the functions of the L1 enhancements provided in the bilingual group input and in the learners' own translations applied in the tasks. It is also possible that the L1-enhancements in the input made it more salient to the learners, and helped them focus attention on the relevant forms. In this way, their noticing was promoted, which, as has already been stated, is a crucial step for further cognitive processing of the material. The noticing-promoting function of the L1 was explicitly addressed by James (1996) in the following way:

> As to what makes an aspect of the FL [foreign language] noticeable, Schmidt suggests frequency, functionality, and, most important, I think, perceptual salience. It is here where the contrastive dimension comes to the fore, since one of the determinants of the perceptual salience of an FL item must be its relationship to its MT [mother tongue] equivalent. (James 1996: 143)

The study also pointed to the function of L1 clues in helping learners notice the *form-meaning mappings* in the L2 input, a function useful not only in raising learners' consciousness of these mappings, but also in enhancing L2 acquisition. The L1 apparently made learners notice the salient L2 features and create the meaning-forms links in their representations. Making *L1-L2 comparisons* was very helpful in this process. It was seen in numerous examples from the protocols that L1-based strategies, such as juxtaposing parts of sentences in English and their translations into Polish, helped learners detect how meanings were expressed and make sense of the formal features of L2 structures. Discovering the form-meaning mappings was a difficult task for some learners. However, even if the processing was not successful, or if it was only partly successful (e.g., the form-meaning connection was not established or was not established properly), the processes involved in this task indicated conscious mental operations, and are of relevance within the scope of this study, which is oriented toward tracing learning both as a process and as a product. Within this orientation, it can be assumed that any attempts to understand a structure, through focusing on its meaning and form, can raise learners' consciousness of that structure. Numerous arguments for such effects resulting from making references to learners' L1 were outlined in Chapter 3. Widdowson (2003: 23) wrote that "the activity of comparing and contrasting the L1 with the target language is a manner of promoting language awareness." Through deliberate cognitive activity, such as comparing forms, breaking a structure down into elements, or translating it or parts of it, learners are likely to make hypotheses about how a structure works and make some mental representations of it. Therefore, translation and other L1-based strategies, such as comparing English and Polish forms, can be assumed to have contributed to learners' enhanced consciousness of the target structures. Here, again, Kupferberg and Olshtein's (1996) and Kupferberg's (1999) studies can be referred to as examples of other research with similar effects. In these studies, contrastive input which focused learners' attention on important L1-L2 differences and consisted of inductive presentation served as a conceptually-driven 'bridge' between the L2 input to which the learners were exposed and the L1 knowledge stored in their long-term memory. This led to discovery of L2 patterns and to facilitated acquisition. The researchers explained that, in learning both in class and on their own, learners often conducted a

cognitive comparison between the L1 and the L2; therefore, instruction which provides or stimulates such processes can assist learners in arriving at the correct discoveries about L2 forms.

Moreover, a high volume of *inferencing*, at the levels of both the meaning and the form of the structures, was observed in the verbal reports, which was another signal of conscious processing in learners' minds. In the input processing task, conscious processing was stimulated by attempts to understand the structures and formulate rules about them, while in the gap-fill and grammaticality judgment tasks, the task demands, such as providing correct forms of verbs or judging whether a sentence was correct or not, necessitated making inferences. Translation and comparing English and Polish forms were frequently used strategies, by participants in both groups, to draw inferences about the target structures. Breaking the English forms down into elements and comparing them with their Polish counterparts was a frequent way of analyzing forms and arriving at a solution, whether correct or not.

With regard to inferencing, none of the strategies used by the participants proved to be successful in every case, and numerous problems were observed with the use of the L1-based strategies as well. Sometimes, as a result of translation or English-Polish comparisons, learners made incorrect inferences about the target forms, often as a result of negative transfer (for example, when providing 'will' in both clauses of the first conditional sentence because of the influence of the equivalent Polish form). This negative effect of the L1 can be linked to the phenomenon of 'overshadowing,' which takes place when L2 forms are heavily influenced (overshadowed) by L1 forms, which are processed much more easily in learners' minds (N. Ellis 2007, 2017). Although examples of wrong inferencing could be found in both groups, it can be stated on the basis of the data that less effective use of strategies was consistently observed in the monolingual group. A higher number of the monolingual group participants did not understand the meaning of the highlighted structures, which led them to formulate wrong rules, often influenced by the L1, and to make wrong inferences. However, in both groups there were examples of participants who did not process the input effectively, attended to randomly selected parts of sentences, and did not focus on the enhanced parts of the input properly. Some students read aloud without much reflection, others just translated texts without stopping to analyze the form and meaning of the

target structures, and did not benefit much from the input enhancement, whichever form it took. Such behavior, however, was definitely more frequent in the monolingual group, where more learners than in the bilingual group did not grasp the forms. For example, some monolingual group participants did not notice the features of the target structures during the input processing task, which caused even greater confusion in the gap-fill and grammaticality judgment tasks, and the application of the direct translation strategy as a last resort led to incorrect inferencing and strengthened the confusion.

It should be stressed here that during the gap-fill and grammaticality judgment tasks most students, regardless of the group, spontaneously applied translation into L1 as a problem solving strategy. This strategy was often more effective, however, in the bilingual group, as they had already processed the correct translations available to them in the input, which had already helped them notice the L2 patterns at the input processing stage. On the other hand, in the monolingual group, the translations made by the learners themselves were often inaccurate and highly misleading. This problem was also observed in the bilingual group, but it was not so prevalent. This could serve as further evidence of the insufficiency of L2 monolingual input for inferring information about the underlying rules and patterns of structures. For most bilingual group participants, the L1 enhancement was a solid foundation for noticing the target structures, attending to them, understanding their meanings, and making inferences about their forms.

Numerous verbal reports contained examples of the L1 serving as a reassuring, confidence-gaining tool in the L2 tasks. It was common practice for the learners to translate the sentences in the tasks to hear how they sound in Polish before they could finally *confirm* that they made sense. The confidence-providing function seems to be another relevant role the L1 played in the processing, both from an affective and a cognitive perspectives. This issue has been discussed in the literature, e.g. by Butzkammm and Caldwell (2009), Littlewood (2014) and Littlewood and Yu (2011). This function of the L1 was another signal of conscious, deliberate working on the L2 material in order to understand it.

Finally, it was frequently observed in the think-aloud protocols that the L1 enhancements provided in BG input served the functions of *explanations*, or *rules*, about how the structure works. The deliberate cross-

linguistic comparisons used by the learners showed that they were often treated as clear and direct signposts to the meaning and form of the target structures, and a basis for further processing. At the same time, it was revealed that the metalinguistic rules provided in the L2 as part of the monolingual group's enhanced input appeared, in most cases, not to be useful for the learners at all. Many of them disregarded the rules completely after initial attempts to understand them, others did not even try. Therefore, in the processing, most of the monolingual group participants either relied on the 'micro-rules' constructed by themselves on the basis of the available examples of the target structure use, or could not see any pattern or rule in the input at all. Formulating a rule on the basis of the input was also a challenging task for the bilingual group, and few bilingual group participants succeeded in formulating a general rule about the target structure. Instead, like monolingual learners, they often relied on exemplars in doing the gap-fill and grammaticality judgment tasks, comparing specific items. However, in the bilingual group arriving at a correct or partly correct micro-rule was facilitated by the translations, which were a very useful source of information about the meaning and form of the structures. Two conclusions can be drawn on the basis of these data. Firstly, most of the learners did not make use of the available rules in their reasoning, and secondly, L1 translations served to a large extent like rules, giving a significant amount of relevant information, while at the same time being more accessible and practice-oriented than grammatical rules. This discussion also calls for a reference to Larsen-Freeman's (2000, 2003, 2009, 2014) suggestion that because technical metalinguistic rules are not always very effective, they should be replaced or complemented by what she calls reasons for L2 use. Reasons in this sense are more descriptive explanations focusing on why a given structure is used in a sentence or wider discourse, thus drawing learners' attention to all its dimensions: form, meaning, and use, and helping them see the underlying logic behind a structure. Perhaps L1 translations can help learners see such 'reasons' more clearly, at the same time not overwhelming them with metalinguistic information and specific terminology. The argument that translations can replace the provision of rules was also discussed by Hentschel (2009), who contended that translation makes the pattern, meaning, and use of an L2 structure transparent and accessible to learners. This general suggestion seems to be corroborated by the qualitative findings of the present study.

7.3. The results of the gap-fill and grammaticality judgment tasks

Investigating the results of the tasks that the participants performed in the course of the study (gap-fill and grammaticality judgment tasks in both sessions), as well as the between-group differences on these measurements, was one of the aims of the study, expressed in Research Question 3.

- RQ 3: What differences will there be in the gap-filling tasks and grammaticality judgment tasks scores obtained by both groups?

Doing the gap-fill tasks, in which the learners could refer to the input material while trying to provide the correct forms of verbs in gapped sentences, was considered to reflect the participants' mental operations and the processes involved in arriving at the correct forms, which were among the main interests of the study. Evidence of these processes was traced in the think-aloud protocols, and constitutes the *learning-as-process* perspective in this study. However, at the same time, it was assumed that the accuracy of arriving at the correct forms was also a reflection of the learners' *knowledge* representation: an indication of their understanding of how the structures work, and of the effectiveness of their inferencing on the basis of the input (the *learning-as-product* perspective). Explicit knowledge, reflecting conscious mental representation (R. Ellis 2004, 2009), was assumed to be derived from the mental operations on the available input clues. The demonstration of the newly acquired knowledge in the output situation, when the learners produced the missing items in the gap-fill task, was thus assumed to provide insights into the effectiveness of their conscious processing of the target L2 structures. That is why the scores of participants' accuracy of responses were calculated and subjected to quantitative analyses. It is important to note that because of the constrained time for instruction and choice of the elicitation techniques, the task scores were considered to indicate an initial effect of learning and rather limited performance. It would be unwarranted to expect substantial learning outcomes as a result of a 60-minute session devoted to explicit learning of a target grammatical structure.

The analysis of the gap-fill task scores showed that the bilingual group performed significantly better than the monolingual group in both sessions. This can be interpreted as indicating the bilingual group participants' higher level of understanding of the forms and meaning of the structures. Because

learners had access to the input from the previous task while doing the gap-fill task, it appears that the bilingual group participants found more relevant information there concerning the meaning and the form of the target structures, which allowed them to make inferences in a more accurate way. Naturally, the translations embedded in the input facilitated this task for them. The facilitative role of the L1-based enhancement probably stemmed from the fact the bilingual group learners could comprehend the input more easily and perhaps in a more accurate way than the monolingual group learners, and the form-meaning connections were apparently more transparent to them. This, in turn, constituted a basis for their hypothesis formation and inferencing, which were more accurate than in the case of the monolingual group, as indicated by the gap-fill task scores. The processes of making form-meaning connections, facilitated comprehension, and making inferences about the meaning and the form had already been discussed in relation to the kinds of cognitive processing in the previous sections, and thus, the gap-fill task scores seem to corroborate the findings of the qualitative analyses of these mental operations. In a way, these findings also corroborate the results of other studies. Piechurska-Kuciel (2005) observed the highest improvement in the post-test in the group which had received awareness-enhancing instruction in the L1, concluding that the language of instruction contributed to learners' greater confidence and deeper understanding of the target structure. White, Muñoz and Collins (2007) also found a positive influence of L2-L1 contrastive instruction on test scores and awareness measures. Similarly, Källkvist (2013) recorded increased focus on the target structure as a result of doing translation activities. Although these studies involved teacher-led instruction, while in the present study the learners relied on their own induction in a consciousness-raising activity, the general conclusions seem to confirm the role of the L1 in enhancing learners' understanding of L2 structures.

It should also be mentioned that the monolingual group participants demonstrated some structure internalization in the gap-fill task as well, and their scores indicated that a certain level of understanding of the grammatical material had also occurred in this group. As indicated by the statistical analyses, however, the scores were significantly higher in the bilingual group, which seems to point to the effects of the differences in the input enhancement as a variable differentiating the two groups on this measurement.

The grammaticality judgment task, like the gap-fill task, was considered to reveal data about learners' mental processing and its effectiveness in the form of emerging explicit knowledge, rather than a manifestation of a finished process of learning. In the grammaticality judgment tasks, the level of participants' explicit knowledge of the structures was operationalized as their ability to judge the grammatical correctness of sentences. Because the grammaticality judgment tasks also included confidence ratings, learners' confidence about the accuracy of their judgments was also evaluated. Therefore, the grammaticality judgment task analyses generated four different measurements: 1) of the accuracy of judgment, 2) of the pre-test/post-test gains, and 3) of the levels of their confidence ratings and 4) of the gains in their confidence ratings. The analyses showed that an improvement between the pre-test and the post-test was observed in both groups, which means that both groups benefitted from doing the tasks which preceded the post-test grammaticality judgment tasks. The participants in both groups were more accurate at judging the grammatical correctness of the target structures at the end of each of the sessions than at its beginning. It can therefore be concluded that both groups benefitted in terms of developing their explicit knowledge about the structures.

However, the bilingual group scored higher than the monolingual group in terms of the accuracy of judgment in one of the two sessions, Session 2. In Session 1, although the bilingual group's knowledge gain was higher than it was in the monolingual group, the difference did not turn out to be significant. The grammaticality judgment scores in Session 1 thus showed that the presence of L1 clues in the input did not influence the learners' receptive recognition of correct and incorrect First Conditional forms, while it did influence their production of these forms at the gap-fill task. One possible explanation is that both groups acquired similar levels of receptive knowledge as a result of their prior processing of the input, as pre-test/post-test progress was observed in both groups. The differences in the cognitive processing strategies analyzed in the think-aloud protocols, as well as in the gap-fill task scores for Session 1 pointed to between-group variation, which was not confirmed by the statistical analyses, possibly due to the specificity of the grammaticality judgment as measurement of explicit knowledge. The results, however, differed in the grammaticality judgment accuracy scores in Session 2. On this measurement, significant differences were revealed between the two groups in

terms of the post-test and the gain scores, with the bilingual group outperforming the monolingual group. This result can be interpreted, as in the case of the gap-fill tasks, in terms of the input enhancement differences. It seems highly probable that since the L1 clues made it easier for bilingual group participants to understand the meaning of the structures, but also to detect how the structures were formed, this explicit knowledge helped them judge the correctness of sentences with greater accuracy. It can be hypothesized that comparing L1 and L2 structures helped them analyze L2 forms and draw inferences which were retained in their memory until the post-test grammaticality judgment task stage. The analysis of the think-aloud protocols revealed a number of strategies which indicated that this was the case: while doing the grammaticality judgment tasks, the learners referred to the forms and the translations they could remember from the input, and deliberately compared them with the sentences encountered in the grammaticality judgment tasks. They also explicitly referred to the rules or 'micro-rules' they had previously formulated in the input processing task. In this way, the quantitative and qualitative analyses of the think-aloud protocols complemented the information obtained from the scores on the tasks.

The grammaticality judgment accuracy scores were also complemented by the confidence rating scores. The analysis showed that the levels of confidence differed significantly between the groups with respect to the post-test and at the confidence gains measurements in both sessions. This appears to be an important finding of the study, because it reflected a highly significant difference between the groups. According to researchers (e.g., Dienes and Perner 2003; Rebuschat 2011; Rebuschat et al. 2013), if confidence is related to accuracy, this is an indication of an explicit knowledge representation, connected with higher levels of consciousness. This kind of measurement was therefore assumed to provide information about the levels of consciousness in making the grammaticality judgments in the present study. The bilingual group participants evaluated their confidence as high while at the same time marking a correct judgment with considerably higher frequency than the monolingual group participants, which was a consistent pattern in the obtained results. For the monolingual group participants, the ratio of accurate judgments accompanied with high confidence was significantly lower, with some learners not achieving any gain, and some displaying a pre-/post-test de-

crease in their confidence in Session 2. Learners' scores obtained through confidence ratings, and especially their relation to the grammaticality judgment accuracy results, are considered to have been obtained through conscious learning processes, such as noticing, detection, and understanding. Therefore, the consistent significant differences between the groups in this respect should be highlighted as a relevant indication of effective conscious processing in the bilingual group during all the tasks in the study. On the basis of these findings, it can be concluded that the presence of the L1 clues in the input was an important factor contributing to learners' conscious knowledge of the target forms.

The fact that the learners improved their understanding of the structure, together with the fact that their confidence about the understanding of the form and meaning of the structure increased, can be connected to both the cognitive and affective functions of the L1 in learning the L2. Most probably, this increase in confidence levels can be attributed to the presence of L1 cues in the input, which facilitated its comprehension and provided a basis for further cognitive processing. As was also seen in the previous analyses, the monolingual group students often struggled with understanding the meaning of the input, translating fragmentary information and providing attempted translations, which, not surprisingly, did not give them enough confidence in making the grammaticality judgments. While doing the tests provided a challenge for the bilingual group as well, they had a tool they could rely on, which made them feel more confident about their familiarity with the target structure and about their judgments. Apparently the feeling of control in performing the preceding tasks gave them higher levels of confidence. In the monolingual group, even in situations when the judgments were accurate, the participants were consistently less eager to admit that they were sure of their judgments.

Recapitulating the examination of the test scores, it should be stressed that the functions of the L1 discussed in the previous sections helped the bilingual group participants outscore the monolingual group in terms of their output evidenced in the gap-fill task scores in both sessions, and in terms of their grammaticality judgment accuracy in one session. The task scores can be interpreted as a demonstration of an effective restructuring of the L2 data, which denotes a change in the learners' internal representations of the target forms as a result of their mental processing, which seems to be congruent with McLaughlin's (1990) theory. In Tomlin and

Villa's (1994) terms, the test scores revealed learners' consciousness by pointing to a cognitive change in their representation. As suggested above, the task scores were a measure of learners' explicit knowledge of the target forms. Generally, they can be assumed to reveal the effectiveness of the mental processing applied during all the tasks in the study, and the complex functions that the L1 played in it: stimulating noticing of the forms, enhancing hypothesis formation and testing, and promoting the making of inferences about L2 forms (Brooks-Lewis 2009; de la Campa and Nassaji 2009; McMillan and Rivers 2011; Niżegorodcew 2007). All these functions are connected to explicit, conscious learning.

7.4. The results of the grammatical sensitivity test

Research Question 4 was connected with the scores obtained on the grammatical sensitivity test and their correlations with other data elicited in the course of the study, such as the frequencies of the use of cognitive and metacognitive strategies, and the scores obtained in the gap-fill and the grammatical judgment tasks. RQ 4 was as follows:

- RQ 4: What correlation will be revealed between the use of mental processing strategies and the grammar task (gap-fill and grammaticality judgment) scores, and scores obtained on the grammatical sensitivity test?

The grammatical sensitivity test (*Words in Sentences*), which revealed mean levels of the participants' language aptitude in terms of their grammatical sensitivity, was the final test completed by both groups of the participants. Their grammatical sensitivity had been selected as the only cognitive individual factor scrutinized within the study. The scores of this measurement indicated that there was considerable individual variation among the participants, with some of them exceeding the average score for a representative sample (Rysiewicz 2011), and others scoring considerably below it. The scores themselves, however, were of minor importance in the analyses undertaken in this study; correlations between the grammatical sensitivity levels and other variables were considered to be more relevant within the investigation on learners' conscious processing of L2 material.

However, although several sets of data were analyzed for correlations with the grammatical sensitivity test scores, few such correlations were found. In fact, there was no correlation between the learners' grammatical sensitivity scores and the frequency of strategy use within any of the groups of strategies, although it had been assumed that learners with higher grammatical sensitivity would use more higher-level processing strategies. No correlations between grammatical sensitivity and any systematic kind of processing were revealed, though. This finding, however disappointing it may be, is largely congruent with the point of view expressed by Skehan (2015), who is rather skeptical about the possibility of finding correlations between grammatical sensitivity and aspects of explicit learning, such as metalinguistic knowledge. He argues that it depends on the learners, with individual variation being an important interfering variable (as was probably the case in the present study), the setting, and the specific measurement. Generally, Skehan (2015) concludes, it is hard to observe relationships between such complex constructs over a short period of time and on few measurements. Moreover, studies have focused on different language structures, which makes finding a correlation almost impossible.

In the present study, although no correlations were discovered with groups of strategies, two individual strategies selected for analysis appeared to correlate with grammatical sensitivity levels. One of them was 'reading aloud in English' (a negative correlation) and the other one was 'metalinguistic reasoning' (a positive correlation). The analyses indicated that learners with higher grammatical sensitivity scores performed less reading aloud while processing the input, and that such learners more frequently referred to metalinguistic information, often with the use of terminology. These findings can be interpreted in terms of higher grammatical sensitivity being positively correlated with a higher-level processing strategy, and negatively correlated with a lower-level processing one. Although this assumption seems to be logical, it cannot be extended to any larger sets of data on the basis of the findings elicited in the present study.

Like Skehan, VanPatten in his publications is also quite skeptical about the relevance of grammatical sensitivity in adult SLA. In his and his co-researchers' recent studies (e.g. VanPatten et al. 2013; VanPatten and Smith 2015), no correlations were revealed between grammatical sensitivity and the effectiveness of processing grammatical information in a Pro-

cessing Instruction mode of learning. More specifically, no correlation was found either between this measure and the efficiency of the processing itself, or between grammatical sensitivity and the final outcome of processing, that is, post-test scores. The explanation offered by the researchers is that grammatical sensitivity appears to be less relevant in "a treatment designed to bring about better processing of data in the input," while it can be a better predictor of the effectiveness of rule learning (VanPatten and Smith 2015: 144). According to VanPatten and Rothman (2014), grammatical sensitivity appears not to be an important variable in situations when learners, firstly, are preoccupied with a task of processing data, not learning, and secondly, where their focus is on surface elements in the input, not on rules.

In fact, the findings of the present study lead to the formulation of a similar conclusion, because, while there was no correlation between grammatical sensitivity and ways of processing the input, there was some correlation between grammatical sensitivity and the results of both gap-fill tasks and the grammaticality judgment task in one session. In these tasks, which required the employment of rules and previously induced patterns, grammatical sensitivity appeared to play a role. This seems to corroborate Skehan's (2015) conclusions as well. Being generally unconvinced about the role of grammatical sensitivity in learning, he admits, however, that aptitude might have an effect in early stages of L2 acquisition, and this effect can be expected in noticing and pattern identification (Skehan 2015).

Therefore, although grammatical sensitivity had been assumed to be an individual factor that would cast some light on the role of the L1 in conscious processing of grammatical input, it did not appear to be directly correlated with either the use of L1-based strategies or higher-level processing strategies, of which L1-based strategies constituted a considerable part. High individual variation, also of other kinds, as well as the brief duration of the study, made obtaining such correlations impossible. Moreover, it needs to be stressed that the intensity of strategy use alone is not necessarily equivalent to its effective use. The qualitative analysis of the use of certain strategies showed that the same kinds of strategies were used effectively in some cases and totally ineffectively in others. Therefore, correlations with the test scores, obtained in the study, could be interpreted as an indirect indication of the role of the L1, because the bilin-

gual group, in which the use of L1-based strategies was considerably higher and more efficient than in the monolingual group, did significantly better in the tasks which measured explicit knowledge of the structures.

7.5. The participants' appreciation of the L1 in learning L2 grammar

The study participants' perceptions about the role of the L1 in the tasks performed in the study, as well as their opinions and beliefs about the roles of the L1 in their learning of English grammar, were the focus of the final research question, Research Question 5, which was formulated in the following way:

- RQ 5: What opinions will the participants express about the performed tasks, especially about the functions of the L1 in their processing, and, more generally, about the role of the L1 in learning L2 grammar?

The findings of the debriefing interviews unambiguously showed that the presence of the L1 translations in the input was highly appreciated by all bilingual group participants. Although the other kinds of input enhancement, that is, the input flood and the underlining, were also considered helpful, the presence of the L1 translations was perceived as the kind of enhancement that appeared to be crucial in performing the tasks.

The bilingual group interviewees, who had worked with the L1-enhanced input, stressed that the translations made their *comprehension* of the input or the target structures easier, and without which comprehension might not have been possible at all. Thanks to the fragmentary translations, they could, first of all, understand the general meaning of the texts, which would have been, as stated by some participants, largely incomprehensible for them due to lexical difficulty. Grasping the general meaning of the input made it possible to pay attention to and analyze the highlighted target structures, which were also made comprehensible thanks to the translations. It was recurrently stressed in the interviews that the learners put significant effort into trying to understand the texts, at least to know what they were about, before any more specific focus on the forms occurred. This is in line with the main premises of the Input Processing theory developed and widely discussed by VanPatten (1996, 2004, 2007),

which assumes learners' preoccupation with a focus on meaning before making form-meaning connections in processing L2 grammar, and which was mentioned above in the discussion of the findings of the qualitative analyses of the think-aloud protocols. Again, the interview findings appeared to confirm and complement the findings obtained through the other research tools, highlighting that the translations appeared to pave the way to grasping the meaning of the input, and to allow the participants to proceed with the analysis of the grammatical structures. Interestingly, the subsequent analysis of the forms and discovering the form-meaning mappings often involved making very conscious and highly explicit cross-linguistic comparisons, as was admitted by the learners in the interviews. Their descriptions of the procedures they used, together with the explanations of why they were helpful, shed light on the level of conscious processing stimulated by the L1. The learners reported on their mental processes in a way that denoted high levels of consciousness present at the stage of processing the material, and the incremental, transformative nature of the processes involved. For example, they reported paying focal attention to the enhanced forms, and initially interpreting the enhancements as relevant and worth paying attention to. This confirms the function of the L1 clues as attracting learners' attention and stimulating their noticing of the target forms.

Although only the bilingual group participants had a chance to work on the L1-enhanced input, in the interviews the monolingual group participants were also invited to share their opinions about the input they would have preferred to process. Almost the whole monolingual group sample (with just two exceptions) definitely opted for the texts with the Polish translations, which corroborates the facilitative role, in the interviewees' opinions, of translations in learning L2 grammar. The justification provided by the participants included a greater chance to understand the meaning correctly, but also to notice the grammatical patterns, and to infer information about the target forms. There were students in the monolingual group who openly admitted in the interviews that at the input processing task they simply did not get the meaning of the forms and found it difficult or even impossible to make sense of the structure, which had negative consequences on their performance on the subsequent tasks. Such examples showed that the other types of input enhancement were not quite sufficient to infer information about the target forms, at least in the opinions

of the participants. On the basis of these reports, it can be assumed that the presence of the L1 translations would have allowed the learners to process the material more effectively. The opinions expressed by the participants about a lower level of usefulness of the monolingual input were, naturally, corroborated by the other findings reported in the previous sections of the discussion.

Interestingly, another reason why the L1-enhanced input was preferred was connected with an enhanced feeling of security and *confidence*. This argument refers to the affective side of learning, linking affect and cognition, and is another important issue in the discussion of the role of the L1 in learning L2 grammar. The affective function of L1 use in the context of learning and teaching the L2 has been reported by numerous researchers. In Brooks-Lewis's (2009) study, learners valued "promoting confidence and a sense of achievement" (p. 234) as a function of the L1; similarly, Littlewood (2014) discussed the psychological security offered to learners by the use of their L1 in L2 learning and teaching, and the feeling of ownership of learning and self-direction created by L1 use. This is relevant, because learners' feeling of security helps them learn effectively and perform better. Along the same lines, Truscott's (2015a) opinions about the value of affective factors, and, specifically, of learners' positive perceptions about the value of input for their learning are incorporated into his discussion on consciousness in L2 learning. He expresses his point of view in the following way:

> At the heart of this importance, and the heart of affect itself, is value. Input that acquires a high positive value will have a very different impact on the linguistic system than input that is negatively valued or is neutral. The question is how the value of input might be influenced for the better; in other words, how can input be enhanced in terms of its value? And, of course, what difference does it make if the learner is conscious of the input's value? (Truscott 2015a: 195)

Within the scope of the present study, the presence of the L1 in the input was perceived as highly valuable in understanding the target structures, in making sense of their form and meaning, and, ultimately, in the process of acquisition. The participants openly claimed that performing the tasks had been largely facilitated, or even made possible, due to the L1 translations. On the other hand, a majority of the monolingual group participants

would have preferred to work with the L1-enhanced versions of the texts, and felt their performance would have been much better as a result. This finding clearly points to a high value attached to the L1 by the learners, and suggests that L1 enhancement can be a way of influencing the learners' perception of the value of input.

It is also worth mentioning in this discussion that the other kinds of text enhancement (input flood, underlining and bolding) were also appreciated by both groups, as directing their attention to the target forms and serving as models of correct L2 use. Such opinions were expressed by some participants, although not all. Apparently, then, the typographical input enhancement played a role in making the forms salient and attracting learners' attention, which is an interesting observation in light of the varying levels of the effectiveness of this technique in teaching grammar reported in numerous studies, e.g. reviewed by Huang (2008), Sharwood Smith (2014), and Loewen and Inceoglu (2016). It can be concluded that the largely explicit nature of the tasks in this study, due to an explicit instruction to draw inferences about the highlighted forms and to formulate a rule, made the learners focus their attention on the target features more effectively than more implicit input enhancement types. The quantitative and qualitative analyses presented in the previous sections indicated that the effectiveness of processing and the accuracy of performance varied among the participants. In any case, however, it must be stressed that learning gains in the gap-fill and the grammaticality judgment tasks were observed in the monolingual group as well, which points to some effectiveness on non-L1-enhancements as well. This finding seems to corroborate the findings of some of the input enhancement studies in which more explicit types of enhancement brought more beneficial results, as suggested by Spada and Ligthbown (2008). Thus, it can be concluded that all types of enhancement were acknowledged to be helpful by the participants in the present study, with the L1 translations valued the most highly.

The participants' appreciation of the role of the L1 in learning grammar was also evident in their accounts of the L2 grammar *learning strategies* they used, both in the study and in their everyday learning situations. All of them listed translation to or from Polish as a useful, and quite obvious, way of learning L2 grammar. Although translation was usually integrated with other ways of learning, it was interesting to note that several of the participants declared using translation as a learning strategy always

or almost always, and considered it to be an almost necessary element of learning the L2. This could be interpreted as a heavy (or perhaps too heavy) reliance on the L1, and an automatically chosen procedure, perhaps not always selected very consciously. It seems that L1-based strategies make most sense if they are judiciously adjusted to a given structure and to a given learning task. Some of the participants, but by no means all of them, admitted that they applied this kind of well- thought-out approach to strategy selection and were able to give examples of the learning tasks and strategies they used. On the other hand, it must to be acknowledged that low-proficiency learners, who have few resources to refer to in a learning situation, naturally resort to what is readily available and sensible at the same time, and that is why it is hardly surprising that the L1 is a frequent point of reference for L2 learners, as was evidenced in this study. Another possible reason for the predominant tendency to look for L1 equivalents is connected with learners' intrinsic motivation, and their curiosity, explained by Seliger (1983: 181) in the following way: "language learners are often curious about grammatical relationships they have observed between the target language and their own language." If referring to the L1 and creating translations are deliberate strategies resulting from learners' curiosity, they can undoubtedly have very positive and facilitating effects on learning. In some cases, however, they can easily lead to a misuse or a misinterpretation of a target structure. Generally, the conclusion that can be drawn on the basis of the participants' descriptions of their grammar learning strategies is that the L1 constituted a highly relevant resource in their learning of L2 grammar. Not only was the translation strategy reported to be used very frequently, but it was clear that it was often consciously applied for specific reasons, such as making the form and meaning of L2 structures more clear and confirming the understanding of L2 structures.

Finally, the specific strategy of comparing L1 and L2 forms, which can be realized through making literal, word-for-word translations or through conscious reflections about L1 and L2 grammatical structures, was also admitted to be used quite frequently and willingly, although more participants voiced some reservations about its usefulness. Several of the participants, however, described their own use of the strategy of making explicit L1-L2 comparisons through analyzing the forms and meaning of structures, were able to discuss the merits of this strategy, and admitted using it on a

regular basis. In their opinion, the main advantage of such procedures was that they made the L2 structures transparent and thus easier to understand. Such accounts of what strategies the learners employed in their learning of L2 grammar and which of them they found particularly helpful also pointed to a general inclination among the participants to analyze forms in an explicit, deliberate way, breaking them into elements and drawing inferences on the basis of conscious processes involved in learning. The L1 appears to play a prominent role in such learning procedures. Through conscious and careful comparisons, learners focus on formal features of the L2, form knowledge representations of the structures in their minds, and gradually construct an understanding of the forms.

Recapitulating, it can be stated that learners' appreciation of the L1-enhancements in the input, as well as of L1-based strategies of learning L2 grammar, emerged from the interview findings. The role of translation and making L1-L2 comparisons in explicit learning of L2 grammar was stressed by the interviewees. A variety of important functions of the L1 were quoted by the participants as a justification of their preferences. Among the functions, the participants mainly discussed clarifying the form and meaning of L2 structures, providing a confirmation for their reasoning, and a feeling of security and confidence in the learning process. Within the scope of the present study, these are important insights, because cross-linguistic teaching techniques and learning strategies have been claimed to increase learners' consciousness of L2 material (Gnutzmann 2009; Kerr 2016; Littlewood and Yu 2011; Zojer 2009).

7.6. Limitations of the study and suggestions for further research

The study had several limitations, some of them deriving from the nature of research based on verbal reports. Some typical limitations related to this research method were discussed by Leow et al. (2014), and all of them could be found in the present study. Other limitations were connected with learner factors, and still others – with the design of the study.

With regards to limitations connected with the think-aloud protocol as a research method, one issue concerns verbal reports not being sensitive enough to capture all thinking that proceeds in participants' mind, and thus failing to reveal a comprehensive picture of the underlying mental processing. The reason for this limitation is that there is usually some var-

iation in learners' verbal ability. Even though learners may be aware of something, they may be unable to report it verbally. Such a phenomenon was apparently present in this study, and, as a result, some protocols were long and elaborate, while others were rather brief. Sometimes the researcher had an impression that a given form had been noticed, but the participant hesitated, or started an utterance without finishing it, and never came back to the same point. Due to this, it is possible that some relevant mental processing was not captured by the verbal reports. Apart from verbal ability, the completeness of the protocols could have been influenced by learners' insecurity about their own processing, or the dynamic nature of mental processing and verbal reporting, where the flow of thoughts makes it impossible to express them all instantly.

This is connected with another phenomenon frequently discussed in the verbal report literature, namely reactivity, which is an adverse effect of the simultaneous processing of data and their reporting. The combination of different mental operations contributes to an increasing processing load and can negatively influence the final shape of the produced report. Although recent studies have shown that reactivity does not significantly influence the result of processing (e.g., Bowles 2010), it could have been an interfering variable in this study. One solution to detect and avoid potential reactivity, suggested by researchers, is an engagement of a control group which would not be required to produce verbal reports. However, due to the limited number of participants, there was no control group in the present study.

Still another problem connected with the think-aloud method, often discussed in the literature and found in the present study, concerned the difficulty involved in the coding and interpretation of think-aloud data, which is naturally a highly subjective process. Distinguishing the categories for coding, assigning strategies to these categories, and finally deciding which mental processes represented which strategy posed a considerable challenge for the researcher and often required long and difficult deliberations. Although some measures were taken to arrive at accurate classifications and coding, such as multiple readings of the same reports and involving another researcher in the coding procedure, making final choices was still a problematic task. Most dilemmas concerned classifying similar strategies, such as, for example, 'interpreting meaning' and 'inferring meaning.' As a result of these difficulties and the considerable volume of

the think-aloud material (60 protocols), certain inconsistencies in the coding of strategies could have occurred.

Concerning learner factors, an obvious problem is connected with the limited number of participants. Although 30 is a relatively high number of participants in think-aloud studies, conclusions drawn on the basis of results obtained by groups consisting of 15 learners (in the bilingual and monolingual groups) have to be interpreted with great caution. A larger research sample would have definitely yielded more reliable data. Moreover, within the sample, individual variation in terms of motivation, learning styles, previous learning experience, or proficiency level, could have influenced the results. Although the proficiency level had been validated through an external placement procedure, it was clear in the process of data collection that some of the learners had received more instruction on the target structures than others and the level of English within the sample was not quite uniform. Another point worth mentioning is that the limited sample size could have impacted some of the results. For example, although there is no minimum number of participants required in correlational research, small-sample studies need particularly large coefficients to achieve high or adequate power. This means that a correlation might not be revealed even though it exists (Larson-Hall 2010: 114). This is another reason for caution in the interpretation of the findings.

Other problems might have resulted from the selection of some of the research procedures. One of them concerns the different types on input enhancement for both groups and the potentially different effects that it could have on the participants' mental processing. While the L1 translations in the bilingual group's input exemplified an inductive task, the presence of the rule in the L2 could be seen as a deductive one. It was evident in the think-aloud protocols that the rule turned out to be too challenging for the participants and was therefore disregarded by them in their processing. However, the potential influence of the different clues in the input cannot be completely excluded.

Moreover, the selection of the target structures for the investigation can also be questioned. Firstly, the number of the structures was severely limited, as there were only two of them. It can be argued that a wider selection of structures would have resulted in more comprehensive findings about the role of the L1 in learning L2 grammar. Secondly, perhaps the nature of the structures themselves heavily influenced the results. Both of

them were assumed to be at similar levels of formal complexity and L1-L2 similarity, but the Passive Voice can be viewed as conceptually more complex than the First Conditional, which can have implications for its mental processing.

The final limitation concerns the potential effect of conducting the study over two sessions instead of one. In Session 2 the participants were already familiar with the study procedures; they knew, for example, that they would be tested again (on the post-test grammaticality judgment task), which could have influenced their performance. The analyses did not reveal any statistically significant differences in terms of the frequency of processing strategies between the two sessions, but the effect of the participants' familiarity with the study procedures could have influenced some other measurements.

The results of the study presented in the previous chapter and discussed in the present one provide inspiration for the formulation of suggestions for further research. While the present study has offered a number of insights into the consciousness-raising functions of the L1 in learning L2 grammar, definitely more research is needed to complement the picture that has emerged from the findings. One idea is related to extending think-aloud investigations by including a larger number of languages. Similar studies, but conducted on participants learning a broader spectrum of languages, could provide relevant data on how the same person processes L2 and L3 grammatical structures with reference to L1 clues. Ideally, these languages should be typologically different, to include language distance as another variable. A related idea concerns introducing input modifications with examples from another foreign language, not only the L1, in order to examine the effects of cross-linguistic influences in language processing. Adding other data elicitation procedures, for example the eye-tracking method, would provide a new perspective on what the participants focus upon when processing input and performing subsequent tasks. With regard to the study sample, similar studies could be conducted on participants at different levels of proficiency, not only beginners, as in the present study, but also intermediate or even advanced learners. Naturally, the task demands and the linguistic difficulty would have to be carefully adjusted to the needs and capacities of such a sample. For example, advanced learners could benefit from processing input featuring less commonly used and more complex grammatical structures, but

also examples of metaphoric or idiomatic uses of grammatical and lexical forms. The L1 or another language that the learners are proficient in could be used as a tool for influencing their mental processing of the target structures. A further idea is connected with conducting a similar study on younger learners. Although references to the L1 in order to raise learners' consciousness about L2 features are considered to be less applicable in teaching children, recent research (e.g., Tellier and Roehr-Brackin 2017) points to the need to develop metalinguistic and cross-linguistic awareness in older children, which they are developmentally ready for. It would therefore be of interest to observe how school children process cross-linguistic comparisons in learning L2 grammar and/or vocabulary. The research methodology and the elicitation tasks would have to be adjusted to the cognitive and developmental demands of this age group, with the think-aloud method not necessarily being appropriate. Summing up the suggestions for further research, it can be concluded that the role of the L1 in learning foreign languages is a topic that still opens up multiple avenues for researchers, and future investigations will undoubtedly illuminate other relevant issues underlying this highly insightful research theme.

7.7. Concluding remarks

This chapter has presented a discussion of the results of the study obtained through a range of elicitation techniques and reported in Chapter 5. Both quantitative and qualitative data, which were gathered in the investigation of learning from both process and product perspectives, have been addressed critically. The main findings of the study underscore the crucial role of the L1 as a tool in raising learners' consciousness in the learning of L2 grammatical structures. It has been demonstrated how the L1 clues attracted learner's focal attention, promoted the noticing of the target forms, facilitated the detection of form-meaning mappings, and generally contributed to the participants' explicit knowledge of the target structures. It can thus be concluded that the L1 stimulated enhanced consciousness both at a lower level of noticing and at a higher level of understanding. The findings of the debriefing interviews further confirmed and reinforced the beneficial role of the L1 in explicit learning of L2 grammar.

The main findings of the study, together with the most general conclusions drawn from the literature review presented in the initial chapters of the present work and the pedagogical implications derived from them will be collectively summed up in the 'Final conclusions,' which is the final part of this work.

Final conclusions

The aim of this work has been to investigate the role of learners' L1 as a consciousness-raising tool in instructed learning of L2 grammar. More specifically, the research explored learners' consciousness at the levels of attention, noticing, and understanding in processing the input with L1 enhancements reflected in the mental processing strategies. It also investigated learners' explicit knowledge resulting from the processing and their perceptions about the usefulness of the L1 in learning L2 grammar. In accordance with this, in order to address the specific research questions formulated at the onset of the study, the convergent parallel mixed methods research design was applied. A number of research methods were used: think-aloud protocols, gap-fill and grammaticality judgment tasks, a grammatical sensitivity test, and an interview. Following the research procedures, both quantitative and qualitative data were yielded. The application of the research procedures made it possible to elicit varied and robust data about learners' consciousness in the learning-as-process and in the learning-as-product perspectives.

The results of the study showed that the L1 clues embedded in the input stimulated a more intensive use of cognitive mental processing strategies, especially those denoting higher levels of consciousness. The L1 performed a number of functions which facilitated the processing of the input and performing the tasks. Specifically, it effectively mediated input comprehension, noticing the target forms, recognizing form-meaning mappings, detecting patterns, making inferences about forms and their meanings, and formulating the underlying rules. Following this, the L1 facilitated the efficiency of explicit learning and contributed to higher levels of explicit mental representations, that is, explicit knowledge, in the bilingual group. Apart from leading to higher levels of accuracy on making grammatical judgments, which was another measurement of explicit knowledge, access to L1 enhancements in the input also resulted in higher levels of confidence about the forms. Finally, the L1 appeared to be highly appreciated by the learners as a helpful tool in learning L2 grammar, especially in analytical, explicit learning tasks. It was considered to be an effective explicit learning strategy, conducive to positive learning effects. It can thus be con-

cluded that the beneficial role of the L1 in raising learners' consciousness about L2 grammatical structures was demonstrated by the study findings.

The results obtained in the investigation seem to be closely linked to a number of theoretical issues presented and discussed in the literature review in the initial chapters of this work, and to largely corroborate, more or less directly, the results of previous studies on consciousness in SLA, on the effects of consciousness-raising as an instructional option, and on the role of the L1 in learning and teaching L2 grammar.

Chapter 1 illuminated the complex nature of consciousness in the field of SLA, and the different levels of its conceptualization. It also highlighted substantial discussions and research in the SLA field on consciousness, stimulated by various SLA theories, and on the implicit/explicit distinctions in the areas of L2 knowledge, learning, and instruction. While empirical investigations have pointed to the role of both implicit and explicit learning processes in forming L2 competence, studies conducted on the learning of natural languages, especially in instructional contexts which provide limited opportunities to stimulate implicit learning mechanisms, have revealed the importance of focal attention, noticing, and consciousness at the level of understanding as crucial variables positively influencing L2 learning processes and outcomes. The theoretical positions on consciousness in SLA have also been reflected in the approaches toward L2 instruction. It was shown in Chapter 2 that form-focused instruction, regardless of the approach that it assumes (explicit or implicit, focus on forms or focus on form), generally aims at developing implicit knowledge in learners, which, according to interface positions, is believed to be preceded by explicit learning. Consciousness-raising instruction, understood in the present work as instruction which aims to help learners notice and understand target grammatical features by consciously processing L2 data and inducing the relevant information by the learners themselves, aptly exemplifies a weak interface position. It therefore assumes that explicit knowledge will emerge as a result of instruction, which can later, under appropriate conditions, be transformed into implicit knowledge. There are a number of strengths of consciousness-raising instruction in terms of learner development. It is learner-centered, as it relies on learners' cognitive involvement and their agency in working out information about forms. It also helps learners focus both on the meaning and on the form of structures, which is an important fea-

ture from the communicative point of view. In fact, it has been stressed that consciousness-raising is in accordance with the communicative approach because it stimulates learners' metacognitive reflection, while at the same time providing meaningful context for the use of structures. In this way, consciousness-raising is process- rather than product-oriented and it helps develop conceptual representations in learners. Another advantage of the consciousness-raising orientation is that it gives teachers considerable flexibility in choosing the best instructional option and adjusting it to learners' needs. In Chapter 2 of the present work, the specific consciousness-raising teaching procedures were divided into input-based, problem-solving, and task-based options. The arguments for the use of learners' L1 found in SLA and ELT literature suggest that L1-based instruction can provide a valuable enrichment for various consciousness-raising instructional procedures.

It was shown in Chapter 3 that learners' L1 performs a number of cognitive functions in instructed learning of L2 grammar, most of which were also evident in the results of the present study. It serves as a vital source of prior knowledge, it is the linguistic system learners naturally refer to when learning the L2, and a basis for forming hypotheses and making discoveries about how the L2 system works. Another group of arguments for the positive role of the L1 in L2 learning concerns the effects of cross-linguistic comparisons and translation on the developing linguistic sensitivity and awareness in learners. Comparing linguistic systems can make learners reflect on the similarities and differences they observe, which is considered to be conducive to the development of overall L2 competence. Previous research on the effects of the L1 on instructed learning of L2 grammar points to the generally beneficial influence on learning outcomes of doing L1-related activities. It is worth stressing, without going into details, that explicit contrastive instruction has been shown to facilitate L2 learning, making learners focus on relevant forms and approach the learning tasks with higher levels of confidence. Moreover, higher levels of metalinguistic awareness have been shown to result from the use of contrastive techniques in teaching L2 grammar. It can therefore be assumed, on the basis of theoretical and empirical accounts found in the literature, that the L1 is an important supportive system for the learning of L2 grammar.

The present study has contributed to the picture emerging from previous research on the role of consciousness in L2 learning, on learners' pro-

cessing of enhanced input, and on the role of the L1 in learning L2 grammar. Although a considerable volume of research has been conducted in each of these topics, the strength of this study is that it combined them in a single investigation, offering an exploration of the mental processes in learning L2 grammar through the mediation of the L1. The combination of the process- and product-orientations, which gave an insight into the online processing and its results, provides a new perspective in studies on the role of the L1 in L2 learning, which have typically involved the learning-as-product orientation. Moreover, previous research on consciousness-raising has mostly focused on comparisons between the effects of the consciousness-raising mode and other types of instruction on the results of learning, often disregarding the 'consciousness' element in learners' L2 development. Therefore, it can be concluded that the present study has illuminated a few important issues underlying the role of learners' L1 in the conscious mental processing of L2 grammatical material.

A number of pedagogical implications can be formulated on the basis of the findings. One of them is connected with the selection of appropriate bilingual teaching techniques with the aim of raising learners' consciousness of L2 structures and building their explicit L2 knowledge. Semi-communicative bilingual drills, which combine practicing the patterns of L2 forms with a focus on the meaning of sentences (Butzkamm and Caldwell 2009; Scheffler 2015), can adequately serve this purpose. In this technique, the use of substitution drills cued by L1-L2 translations is a mediating stage between the presentation of an L2 structure and the stimulation of learners' own creativity through controlled and freer practice in the L2. Such an activity provides careful guidance for learners in the gradual acquisition of L2 grammatical forms. On the basis of the findings of the present study, it can be seen that learners appreciate this kind of instruction and consider it to be beneficial for learning. Other examples of recommended techniques consist in clarifying grammar points through the 'mirroring' technique and the technique of searching for analogies, which can be followed by further bilingual or monolingual practice. For freer, more communication-oriented practice, a drama activity which makes use of the 'sandwich technique' can be suggested. While practicing their roles according to a script, learners are also exposed (if the need arises) to the translation of more problematic sentences, while both the L2 and L1 sentences are uttered with the right intonation, voice quality, and gestures to convey the meaning in an accurate and clear way

(Butzkamm and Caldwell 2009). There are many more good, creative techniques which make use of the L1 as a consciousness-raising tool.

Apart from making judicious use of teaching techniques with elements of L1 use, the instructor needs to be prepared to offer guidance to learners about which structures and which of their dimensions (form, meaning, use) are particularly appropriate for conducting L1-L2 comparisons. Without any guidance, learners might tend to translate and compare L1 and L2 structures automatically, which could deprive them of the possibility of resorting to other, L2-based means of understanding L2 structures, and which could also lead to the negative effect of making wrong inferences. A related implication is that the teacher can also conduct learner training in order to equip learners with appropriate strategies for using the L1 in a way that would promote, and not hinder, their L2 learning. This is another important implication of the present study. As was seen from the findings, some learners had a tendency to resort to translation in an automatic, not necessarily purposeful way. Learner training should thus make them aware of the different functions of the L1 and the need to evaluate whether and to what extent the L1 will be helpful in learning L2 forms. Making bilingual comparisons, looking for analogies and striking differences, as well as exploring the form-meaning connections in both languages seem to be the strategies that should be modelled to learners as suitable for independent out-of-class learning, for without guidance, learners might not consciously develop a set of good-quality, context-adjusted learning strategies, including L1-based strategies. However, with some training, making cross-linguistic comparisons can be encouraged as a learning strategy. Such explicit ways of learning grammar are, as was shown by the interview findings, a commonly assumed approach, highly appreciated by the research sample. At the same time, learners should be reminded that implicit knowledge of L2 structures, demonstrated in their spontaneous, fluent use in communicative situations, is the desired aim of learning and teaching grammar. Therefore, ample opportunities for contextualized, meaningful language use should be created in every grammar lesson, and engaging in communicative L2 use needs to be encouraged as a basic grammar learning strategy.

Another implication that can be drawn from the study addresses the role of the L1 in the perspective of learners' multilingual development. In the era of globalization, what should be promoted is the kind of multilingualism in which the L1 takes a prominent place as a token of identity

and a relevant asset in linguistic repertoires. The different roles that the languages familiar to learners play in their lives, and the challenges involved in their learning, development (including the ongoing development of L1 competence) and communicative use could be a topic for reflection-stimulating and awareness-raising discussions. Filling in a language portfolio, for example, the Language Passport part of the *European Language Portfolio* (Council of Europe 2000) can serve similar purposes.

Fostering multilingual development leads to practical ideas for combining more than two languages in the teaching of either native or foreign languages. Relevant examples from the other languages that learners know can enrich the instruction of any language, second or foreign. Illustrations taken from other languages can also be used in L1 instruction, for example, the L2 or L3 can provide a basis for cross-linguistic comparisons in L1 (e.g. Polish) lessons. Grammatical structures can be compared through translation, mirroring, explicit analysis of their forms and meanings; moreover, code-switching strategies can be illustrated, practiced and discussed in L2 and L1 lessons. Apart from grammar, lexical units, formulaic expressions, ways of expressing functions, etc., can be compared and contrasted. Most probably, cooperation among teachers of different languages could prove to be valuable in this respect. Such teaching techniques would definitely contribute to learners' raised cross-linguistic awareness and promote their development as multilingual users.

Recapitulating, the results elicited in the present study reveal an important role for the L1 as a consciousness-raising tool in instructed learning of L2 grammar. It can be concluded that the L1 can largely facilitate the processing of L2 data, drawing learners' attention to the target features, allowing them to infer the meaning of the input and to effectively discover form-meaning mappings. Judicious, purposeful use of the L1 can therefore contribute to efficient learning of L2 grammar, with a focus on both the formal features of structures as well as their communicative dimensions: meaning and use. Including the L1 in learning and teaching the L2, if accomplished with an appreciation of the primary role of communicative L2-based techniques, will undoubtedly help learners fully develop their learning potential.

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Appendix

Appendix 1

Demographic questionnaire

1. Płeć: K M
2. Wiek: ……... lat
3. Wydział UAM: …… rok studiów: ……
4. Jak długo uczy się Pan(i) języka angielskiego? ……. lat
5. Gdzie do tej pory uczył(a) się Pan(i) języka angielskiego?
   a. w szkole podstawowej
   b. w gimnazjum
   c. w szkole średniej
   d. na kursach językowych
   e. na wyjazdach zagranicznych
   f. we własnym zakresie/w domu
   g. inne miejsca: ……
6. Jakie inne języki obce Pan(i) zna i na jakim poziomie?
   a. Język: ……..
      podstawowy średniozaawansowany biegły
   b. Język: ……..
      podstawowy średniozaawansowany biegły
   c. Język: ……..
      podstawowy średniozaawansowany biegły
   d. Język: ……..
      podstawowy średniozaawansowany biegły
7. Jakich języków obcych, poza angielskim, obecnie się Pan(i) uczy?
   ……

Appendix 2

The think-aloud instruction

W niniejszym badaniu interesuje mnie, co Pan/Pani myśli w trakcie zapoznawania się ze strukturą gramatyczną w języku angielskim oraz wykonywania ćwiczeń. W tym celu bardzo Pana/Panią proszę o myślenie na głos w trakcie wykonywania zadań.

Myślenie na głos oznacza mówienie wszystkiego, o czym Pan/Pani w danym momencie myśli, wykonując zadanie. Chciałabym, aby mówił(a) Pan/Pani przez cały czas, od momentu rozpoczęcia pracy do jej zakończenia. Proszę nie zastanawiać się nad tym, co powiedzieć, nie planować swoich wypowiedzi, ani nie tłumaczyć mi, co Pan/Pani ma na myśli. Proszę zachowywać się tak, jakby był(a) Pan/Pani sam(a) w pokoju i głośno myślał(a) do siebie samego/samej.

Najważniejsze, żeby nie przestawać mówić. Jeśli więc zatrzyma się Pan/Pani na chwilę, będę o tym przypominać, pytając: „O czym teraz Pan/Pani myśli?" Nie będę w żaden sposób ingerować w Pana/Pani sposób rozwiązywania zadań, nie będę pomagać – to nie jest potrzebne.

Przypominam, że Pana/Pani wypowiedzi będą nagrywane na dyktafon oraz że badanie jest całkowicie anonimowe.

Czy sposób przeprowadzenia badania jest dla Pana/Pani zrozumiały?

Żeby zilustrować, o co chodzi, jako rozgrzewkę zademonstruję głośne myślenie w trakcie rozwiązywania prostego zadania matematycznego. Na przykład, ile jest 24 razy 32? Ile jest 26 razy 25?

Appendix 3

Enhanced input materials

The bilingual group, Session 1

Proszę uważnie zapoznać się z przedstawionym poniżej materiałem i starać się zrozumieć zawartą w nim strukturę gramatyczną. Następnie proszę spróbować sformułować regułę dotyczącą formy i znaczenia/stosowania tej struktury gramatycznej.

Tekst 1

We would like to have a nice time during the weekend, but it all depends on the weather. If the weather is good (**jeśli będzie ładna pogoda**), we will get away (**wyjedziemy**) for two days. If it is sunny (**jeśli będzie słonecznie**), we'll go (**pojedziemy**) to the seaside and we'll spend (**spędzimy**) the day on a beach. If it rains (**jeśli będzie padać**), we will definitely stay (**zostaniemy**) at home. We will organize (**zorganizujemy**) a party if our friends agree (**jeśli nasi przyjaciele zgodzą się**) to come.

Tekst 2

Mother: Come on! If you don't hurry (**jeśli się nie pośpieszysz**), we'll miss (**spóźnimy się**) the train!
Child: And what will happen (**co się stanie**) if we miss (**jeśli się spóźnimy**) the train?
Mother: We will be in trouble. Dad will be very sorry (**tacie będzie przykro**) if we don't arrive (**jeśli nie przyjedziemy**) on time.
Child: And what will he do?
Mother: Stop asking these questions! We'll be late (**spóźnimy się**) if we don't hurry (**jeśli się nie pośpieszymy**) up now!

Tekst 3

Ann thinks she will visit **(zwiedzi)** some interesting places if she has **(jeśli będzie miała)** enough money this summer. If she works **(jeśli będzie pracowała)** as a waitress in June, she will afford **(będzie ją stać)** to go to Paris for two weeks. If she goes **(jeśli pojedzie)** to Paris, she will climb **(wejdzie)** the Eiffel Tower and she'll take **(odbędzie)** a boat tour of the Seine. If she earns **(jeśli zarobi)** even more money, she will travel **(będzie podróżować)** around France and she'll see **(zobaczy)** even more interesting places.

Tekst 4

I will spend **(spędzę)** the evening with you if I have **(jeśli będę miał)** the time. However, if my boss gives **(jeśli szef da)** me work do, I will be **(będę)** very busy. I will spend **(spędzę)** at least 5 hours in the office if I have **(jeśli będę musiał)** to read all the documents. But don't worry, if I am **(jeśli będę)** busy tonight, I will invite **(zaproszę)** you to dinner tomorrow.

Tekst 5

My daughter is taking a driving test next week. If she passes **(jeśli zda)**, she will get **(dostanie)** a driving license soon. If she has **(jeśli będzie miała)** a driving license, we will buy **(kupimy)** her a car. If she has **(jeśli będzie miała)** her own car, she will be **(będzie)** very happy. But if she fails **(jeśli obleje)** the test, she will have to **(będzie musiała)** retake it.

The bilingual group, Session 2

Proszę uważnie zapoznać się z przedstawionym poniżej materiałem i starać się zrozumieć zawartą w nim strukturę gramatyczną. Następnie proszę spróbować sformułować regułę dotyczącą formy i znaczenia/stosowania tej struktury gramatycznej.

Tekst 1

Armed robbers have escaped with a lot of cash in a raid on a bank. It is estimated **(jest szacowane/szacuje się)** that at least ten million dollars and other valuables were stolen (**zostały skradzione**) but it is not known **(nie wiadomo)** how much exactly. Police arrived within minutes after shots were heard **(zostały usłyszane strzały)**. "We were told **(kazano nam)** to lie on the floor and we were warned **(ostrzeżono nas)** not to move," one customer told reporters.

Tekst 2

This is a special news announcement.

President Ron Garney has been shot **(Ron Garney został postrzelony)**. He was attacked **(został zaatakowany)** by a masked gunman as he was driving to work this morning. The President was immediately taken **(prezydent został natychmiast przewieziony)** to a hospital. His condition is described **(stan opisywany jest)** as serious but not life-threatening. He is treated **(jest leczony)** by the country's best doctors. It is expected **(oczekuje się)** that the President will make a full recovery soon.

Tekst 3

In the municipal park, certain rules have to be followed **(zasady muszą być przestrzegane)**. For example, dogs must be kept **(psy muszą być trzymane)** on a lead. Ball games aren't allowed **(gry nie są dozwolone)**. The use of bicycles is forbidden **(użycie rowerów jest zakazane)**. Bicycles will be removed **(rowery będą usunięte)** if they are locked **(będą przypięte)** to the railings. If you disobey these rules, you will be asked **(będziesz poproszony)** to leave the park.

Tekst 4

Jane's 40th birthday was celebrated **(urodziny były obchodzone)** last week. On that occasion, she was taken **(została zabrana)** to the theater by her husband and a lot of guests were invited **(goście byli zaproszeni)** to a huge party in an expensive restaurant. Delicious food was served **(jedzenie było serwowane)** and champagne was drunk **(szampan był pity)** all night. Of course, Jane was given **(Jane otrzymała/Jane dano)** a lot of beautiful presents. At 5 a.m. next morning she and her husband were driven **(zostali odwiezieni)** back home in a splendid limousine.

Tekst 5

It is widely believed **(powszechnie się wierzy)** that America was discovered **(Ameryka została odkryta)** by Christopher Columbus in 1492, although this fact has been questioned **(fakt jest kwestionowany)** by many historians. Some of them say that America was first explored **(została najpierw eksplorowana)** by Leif Ericsson 500 years before Columbus. It must be said **(trzeba powiedzieć)**, however, that thanks to Columbus America was colonized **(Ameryka została skolonizowana)** and western civilization was developed **(cywilizacja została rozwinięta)** on this continent.

The monolingual group, Session 1

Proszę uważnie zapoznać się z przedstawionym poniżej materiałem i starać się zrozumieć zawartą w nim strukturę gramatyczną.

RULE:
The First Conditional is used to talk about things that are possible in the future – things that may happen. It is used to express a condition or situation in the future, and the result of this condition. Conditional sentences are made up of two parts: the is-clause (condition) and the main clause (result that follows).

Tekst 1
We would like to have a nice time during the weekend, but it all depends on the weather. If the weather is good, we will get away for two days. If it is sunny, we'll go to the seaside and we'll spend the day on a beach. If it rains, we will definitely stay at home. We will organize a party if our friends agree to come.

Tekst 2
Mother: Come on! If you don't hurry, we'll miss the train!
Child: And what will happen if we miss the train?
Mother: We will be in trouble. Dad will be very sorry if we don't arrive on time.
Child: And what will he do?
Mother: Stop asking these questions! We'll be late if we don't hurry up now!

Tekst 3
Ann thinks she will visit some interesting places if she has enough money this summer. If she works as a waitress in June, she will afford to go to Paris for two weeks. If she goes to Paris, she will climb the Eiffel Tower and she'll take a boat tour of the Seine. If she earns even more money, she will travel around France and she'll see even more interesting places.

Tekst 4
I will spend the evening with you if I have the time. However, if my boss gives me work do, I will be very busy. I will spend at least 5 hours in the office if I have to read all the documents. But don't worry, if I am busy tonight, I will invite you to dinner tomorrow.

Tekst 5
My daughter is taking a driving test next week. If she passes, she will get a driving license soon. If she has a driving license, we will buy her a car. If she has her own car, she will be very happy. But if she fails the test, she will have to retake it.

Proszę spróbować własnymi słowami sformułować regułę dotyczącą formy i znaczenia/stosowania tej struktury gramatycznej.

The monolingual group, Session 2

Proszę uważnie zapoznać się z przedstawionym poniżej materiałem i starać się zrozumieć zawartą w nim strukturę gramatyczną.

RULE:
The passive voice is used when the focus is on the action. It is not important or not known, however, who or what is performing the action. It is often formed by using the appropriate form of the verb 'to be' and a past participle.

Tekst 1

Armed robbers have escaped with a lot of cash in a raid on a bank. It is estimated that at least ten million dollars and other valuables were stolen but it is not known how much exactly. Police arrived within minutes after shots were heard. "We were told to lie on the floor and we were warned not to move," one customer told reporters.

Tekst 2

This is a special news announcement.
President Ron Garney has been shot. He was attacked by a masked gunman as he was driving to work this morning. The President was immediately taken to a hospital. His condition is described as serious but not life-threatening. He is treated by the country's best doctors. It is expected that the President will make a full recovery soon.

Tekst 3

In the municipal park, certain rules have to be followed. For example, dogs must be kept on a lead. Ball games aren't allowed. The use of bicycles is forbidden. Bicycles will be removed if they are locked to the railings. If you disobey these rules, you will be asked to leave the park.

Tekst 4

Jane's 40th birthday was celebrated last week. On that occasion, she was taken to the theater by her husband and a lot of guests were invited to a huge party in an expensive restaurant. Delicious food was served and champagne was drunk all night. Of course, Jane was given a lot of beautiful presents. At 5 a.m. next morning she and her husband were driven back home in a splendid limousine.

Tekst 5

It is widely believed that America was discovered by Christopher Columbus in 1492, although this fact has been questioned by many historians. Some of them say that America was first explored by Leif Ericsson 500 years before Columbus. It must be said, however, that thanks to Columbus America was colonized and western civilization was developed on this continent.

Proszę spróbować własnymi słowami sformułować regułę dotyczącą formy i znaczenia/stosowania tej struktury gramatycznej.

Appendix 4

The gap-fill tasks (both groups)

Session 1

Proszę uzupełnić poniższe zdania, używając konstrukcji z poprzedniego zadania.

1. If I _____ (eat) too much, I _____ (get) fat.

2. My mum _____ (get) angry if I _____ (be) late for dinner.

3. I _____(pass) the exam if I _____ (study) hard.

4. If it _____ (be) sunny, my parents _____ (take) us to the beach.

5. If we _____ (not protect) the white dolphins, they _____ (become) extinct.

6. Sue and Peter _____ (not get) lost if they _____ (have) a map.

7. If you _____ (not reserve) a ticket, you _____ (not get) a seat.

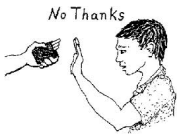
8. If it _____ (snow), the children _____ (make) a snowman.

9. Alice _____ (look) very beautiful if she _____ (have) a haircut.

10. If Bob _____ (go) to the swimming pool every day, he _____ (learn) to swim.

11. If you _____ (stay) in Poznań for the week-end, we _____ (invite) you to a party.

12. My Dad _____ (be) very happy if I _____ (stop) smoking.



Session 2

Proszę uzupełnić poniższe zdania, używając konstrukcji z poprzedniego zadania.

1. The letters _____ (deliver) at 8.00.

2. This hotel _____ (build) two years ago.

3. Your keys _____ (find) on the floor.

4. The telephone _____ (invent) by a team of scientists led by Alexander Graham Bell.

5. Kate _____ (give) a beautiful ring by her boy-friend.

6. It _____ (say) that dogs are more intelligent than cats.

7. I _____ (surprise) by the low prices in this shop.

8. The Sistine Chapel _____ (paint) by Michelangelo.

9. It _____ (believe) that too much sugar is bad for health.

10. Remember, you _____ (expect) to pay the money by tomorrow!

11. All mistakes in the test must _____ _____ (correct).

12. The damage _____ (cause) by fire.

Appendix 5

(Pre- and post-test) grammaticality judgment tests (both groups)

Session 1

Proszę ocenić, czy podane zdania są poprawne gramatycznie. Dodatkowo proszę też zaznaczyć, na ile jest Pan/Pani pewny/a swojej decyzji.

1. If she will miss the bus, she will be late for school. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

2. If it rains, we will stay at home. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

3. If she will apologize, I'll forgive her. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

4. I will see Peter if he will come to school. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

5. If we have time on Saturday, we will make a party. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

6. He gets ill if he will get wet in the rain. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

7. If she doesn't get a good job in Poland, she will go to London. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

8. I will earn a lot of money if I get this job. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

9. If she works hard, she will win. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

10. You will meet my sister if you visit me next week. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

11. Dad will be angry if we will not call him tonight. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

12. He will not catch the train if he will not hurry up. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

Session 2

Proszę ocenić, czy podane zdania są poprawne gramatycznie. Dodatkowo proszę też zaznaczyć, na ile jest Pan/Pani pewny/a swojej decyzji.

1. „Hamlet" is writing by William Shakespeare. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

2. The suspect was questioned by the police. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

3. The room has been cleaned and it looks good now. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

4. The car was repairing by Peter. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

5. A lot of new roads constructed in Poland. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

6. It forbidden to take photographs in this museum. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

7. You will be given 100 zloties for doing this job. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

8. The exam was failing by many students. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

9. A lot of preservatives are used in food nowadays. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

10. It is said that women live longer than men. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

11. My bicycle will damage by the children. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

12. The children were told to be quiet. Poprawne Niepoprawne
- Nie wiem – Zgaduję
- Nie jestem pewny(a)
- Jestem prawie pewny(a)
- Jestem całkiem pewny(a)

Appendix 6

Core questions for the semi-structured interview

1. Proszę jeszcze raz przyjrzeć się tekstom z obu sesji i powiedzieć, na co zwracał/a Pan/i uwagę, zapoznając się z tym materiałem.
2. Który rodzaj materiału byłby bardziej odpowiedni dla Pani/Pana? Z polskimi tłumaczeniami czy bez nich? Dlaczego?
3. Czy ma Pan/i swoje ulubione sposoby uczenia się gramatyki języka angielskiego? Które z nich uważa Pan/i za najbardziej skuteczne?
4. Czy ucząc się gramatyki języka angielskiego, odnosi się Pan/i do języka polskiego?
5. Czy według Pani/Pana porównywanie struktur gramatycznych w języku obcym i polskim jest pomocne w nauce gramatyki?

Appendix 7

Tables (A1 – A10) with raw frequencies of mental processing strategies use and descriptive statistics

Table A1. Frequency counts and descriptive statistics for cognitive strategies in the input processing (IP) task in the bilingual group (BG).

Strategy (IP)	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	Mean	SD
SRA_ENG	11	2	7	14	7	14	9	7	7	11	16	15	12	0	2	8.93	4.81
RA_ENG	29	56	18	31	17	14	29	42	59	13	17	32	15	58	37	31.13	15.78
SRA_POL	0	2	2	4	0	1	5	2	3	3	0	3	4	4	4	2.47	1.59
RA_POL	23	18	28	21	15	5	26	2	9	6	8	26	12	18	18	15.67	8.06
RW_ENG	9	4	4	7	5	3	8	0	2	0	8	0	8	2	0	4.00	3.22
RW_POL	16	3	7	2	0	2	7	0	2	1	2	1	6	0	3	3.47	4.05
RR	3	2	0	4	0	2	5	0	2	1	1	3	3	0	2	1.87	1.50
RT	10	1	0	5	3	6	7	5	1	5	1	1	6	0	4	3.67	2.87
OT	27	57	28	26	23	13	23	15	22	18	17	11	17	12	22	22.07	10.71
JT	9	17	19	7	28	0	10	0	0	18	37	29	16	0	8	13.20	11.27
COMP_ ENG_POL	18	10	6	9	0	6	12	5	2	7	5	7	8	3	4	6.80	4.23
COMP_POL	4	3	5	2	0	4	4	1	0	4	1	1	9	2	0	2.67	2.36
CS	5	21	4	4	7	0	5	4	0	6	0	2	10	0	6	4.93	5.16
INT_MEAN	8	2	11	3	1	0	6	7	0	9	19	12	0	0	10	5.87	5.50
COMP_ENG	9	0	2	6	0	7	8	4	4	4	0	3	6	0	0	3.53	3.05
INF_FORM	15	10	8	11	5	13	12	7	1	4	4	4	11	3	6	7.60	4.05
INF_MEAN	16	18	5	16	0	7	13	9	10	16	36	7	26	13	10	13.47	8.51
MLR	10	6	3	10	7	21	8	2	3	7	14	1	17	8	9	8.40	5.38

ATT_FORM	4	1	11	11	6	5	3	15	4	9	10	11	5	3	6	6.93	3.84
SOU_TH	5	16	0	3	2	5	8	5	1	2	8	3	6	0	2	4.40	3.96
REF	4	9	6	7	0	8	18	5	6	2	9	6	12	14	6	7.47	4.41
PREV_KN	6	2	6	4	2	5	2	0	2	3	0	0	4	2	0	2.53	2.03
REF_RULE	4	0	5	5	0	2	1	3	0	3	2	2	4	0	0	2.07	1.81

Table A2. Frequency counts and descriptive statistics for cognitive strategies in the input processing (IP) task in the monolingual group (MG).

Strategy (IP)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**	**M13**	**M14**	**M15**	**Mean**	**SD**
SRA_ENG	8	18	0	2	16	16	19	0	0	29	12	16	6	4	2	9.87	8.57
RA_ENG	17	31	18	54	20	0	35	13	0	27	49	28	39	44	22	26.47	15.56
SRA_POL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
RA_POL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
RW_ENG	4	2	5	6	1	2	2	0	7	9	6	11	4	6	0	4.33	3.13
RW_POL	7	0	1	0	0	2	5	3	0	0	0	4	5	4	1	2.13	2.28
RR	3	0	2	3	0	1	1	0	0	4	1	8	4	3	2	2.13	2.09
RT	7	0	0	0	0	0	6	8	0	0	3	4	4	6	2	2.67	2.87
OT	8	2	0	2	0	8	19	7	0	11	12	16	11	2	12	7.33	5.94
JT	51	2	0	0	0	11	24	48	11	5	2	6	0	5	15	12.00	16.09
COMP_ ENG_POL	0	0	0	0	0	3	4	2	5	5	2	2	0	0	1	1.60	1.82
COMP_POL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
CS	6	0	0	0	0	4	4	3	4	2	0	1	3	1	3	2.07	1.88
INT_MEAN	0	1	2	4	0	10	17	2	22	8	4	4	3	0	0	5.13	6.37

COMP_ENG	0	0	0	0	1	4	6	5	1	6	0	4	0	0	4	2.07	2.35
INF_FORM	6	3	2	5	7	5	3	1	4	3	2	4	2	0	3	3.33	1.81
INF_MEAN	5	0	2	2	8	19	3	5	8	8	6	4	4	0	4	5.20	4.46
MLR	0	4	3	3	20	34	4	1	7	7	2	7	0	1	6	6.60	8.72
ATT_FORM	6	12	12	7	7	13	6	7	2	13	5	0	6	7	6	7.27	3.68
SOU_TH	3	0	0	3	1	2	2	4	0	1	4	5	7	3	3	2.53	1.93
REF	0	2	2	1	2	2	0	2	4	3	4	8	4	0	0	2.27	2.08
PREV_KN	1	0	2	0	3	2	3	4	0	9	0	4	3	2	2	2.33	2.24
REF_RULE	0	0	1	0	0	1	3	0	0	1	0	2	4	0	0	0.80	1.22

Table A3. Frequency counts and descriptive statistics for cognitive strategies in the gap-filling (GF) tasks in the bilingual group (BG).

Strategy (GF)	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**	**B11**	**B12**	**B13**	**B14**	**B15**	**Mean**	**SD**
SRA_ENG	11	11	15	7	9	14	14	9	6	10	7	11	11	2	0	9.13	4.08
RA_ENG	8	8	7	11	5	3	15	15	26	3	9	12	7	20	11	10.67	6.08
RW_ENG	6	7	3	10	3	4	9	7	10	5	3	0	4	5	4	5.33	2.75
RW_POL	3	4	0	5	7	3	2	3	3	4	1	0	6	0	6	3.13	2.19
RR	6	0	5	10	3	7	7	12	4	5	0	4	4	1	0	4.53	3.44
RT	4	5	0	5	16	8	7	0	2	5	4	9	10	0	3	5.20	4.20
OT	15	27	16	28	26	23	15	10	30	14	16	20	14	10	12	18.40	6.52
JT	5	0	4	6	4	2	6	16	8	11	17	2	7	0	14	6.80	5.28
COMP_ ENG_POL	5	13	2	11	10	8	10	1	11	5	3	4	12	18	3	7.73	4.73
COMP_POL	5	0	3	4	3	4	11	0	2	3	2	0	3	0	5	3.00	2.73
CS	9	0	3	5	4	5	2	0	5	6	7	0	6	2	2	3.73	2.64

INT_MEAN	4	0	5	2	2	2	4	0	3	2	1	2	2	0	2	2.07	1.44
COMP_ENG	2	0	0	4	2	8	6	4	2	8	0	0	4	6	4	3.33	2.70
INF_FORM	28	30	37	39	29	28	27	29	31	40	53	27	36	28	29	32.73	6.91
INF_MEAN	6	5	7	15	3	8	3	11	2	2	10	3	13	1	5	6.27	4.17
MLR	5	5	7	11	8	16	13	10	7	6	21	0	6	1	2	7.87	5.46
INTU	0	3	1	5	3	0	4	0	2	3	0	6	0	1	2	2.00	1.90
ATT_FORM	4	3	6	2	3	2	4	1	4	3	1	7	0	0	0	2.67	2.05
SOU_TH	2	7	3	3	4	6	12	2	0	6	4	3	7	1	2	4.13	2.94
REF	14	11	16	19	28	15	15	13	17	24	7	14	34	27	19	18.20	6.95
PREV_KN	0	3	0	4	2	8	3	0	3	3	1	2	10	0	4	2.87	2.80
REF_RULE	3	2	0	7	1	7	3	2	1	2	2	0	4	0	2	2.40	2.12

Table A4. Frequency counts and descriptive statistics for cognitive strategies in the gap-filling (GF) task in the monolingual group (MG).

Strategy (GF)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**	**M13**	**M14**	**M15**	**Mean**	**SD**
SRA_ENG	7	11	4	7	14	0	9	6	5	13	2	4	5	0	6	6.20	4.05
RA_ENG	6	21	0	11	5	0	14	2	17	5	18	20	14	24	12	11.27	7.63
RW_ENG	0	9	0	2	14	0	1	1	0	11	10	8	6	2	4	4.53	4.59
RW_POL	3	0	1	0	7	0	0	0	3	4	0	3	1	0	3	1.67	2.02
RR	3	6	1	0	1	0	0	9	0	0	2	5	4	0	3	2.27	2.64
RT	9	0	2	0	2	3	0	0	5	1	2	9	0	6	2	2.73	3.02
OT	6	1	7	1	19	11	10	8	14	9	13	16	6	16	4	9.40	5.28
JT	28	0	13	0	7	12	1	14	1	0	2	6	4	1	0	5.93	7.63

COMP_ ENG_POL	0	0	2	0	3	0	1	9	7	2	2	5	2	0	5	2.53	2.70
COMP_POL	2	0	1	0	2	0	0	0	0	3	0	2	0	0	1	0.73	1.00
CS	2	0	5	0	5	1	1	3	0	2	0	4	1	1	2	1.80	1.68
INT_MEAN	0	0	6	0	1	9	5	0	1	2	2	2	0	4	3	2.33	2.57
COMP_ENG	4	4	0	2	0	0	4	0	0	4	2	8	4	0	0	2.13	2.36
INF_FORM	33	31	29	27	49	30	22	42	27	37	27	26	30	30	33	31.53	6.56
INF_MEAN	24	0	4	2	11	23	1	2	3	1	1	7	3	0	3	5.67	7.52
MLR	19	1	9	1	16	14	0	2	11	4	3	10	5	0	3	6.53	6.00
INTU	0	4	2	0	2	0	0	0	0	2	2	0	1	3	0	1.07	1.29
ATT_FORM	5	3	4	0	8	3	1	1	3	1	3	5	4	4	1	3.07	2.02
SOU_TH	6	2	0	0	5	4	0	0	2	0	0	3	0	7	3	2.13	2.36
REF	19	36	10	10	16	1	7	2	12	15	11	9	7	3	4	10.80	8.42
PREV_KN	0	0	1	0	1	0	0	0	4	3	0	1	2	0	5	1.13	1.59
REF_RULE	4	1	0	0	0	0	0	0	2	3	0	6	1	0	3	1.33	1.81

Table A5. Frequency counts and descriptive statistics for cognitive strategies in the grammaticality judgment (GJ) task in the bilingual group (BG).

Strategy (GJT)	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**	**B11**	**B12**	**B13**	**B14**	**B15**	**Mean**	**SD**
SRA_ENG	13	4	3	3	9	0	4	3	4	0	9	5	11	0	0	4.53	4.03
RA_ENG	12	20	21	21	14	24	20	21	20	24	15	17	10	24	22	19.00	4.27
RW_ENG	6	18	8	4	2	5	10	4	9	9	4	5	8	11	6	7.27	3.80
RW_POL	2	0	3	3	0	0	4	1	1	4	1	0	4	3	2	1.87	1.50
RR	6	5	2	4	3	3	9	1	5	2	3	0	5	6	1	3.67	2.30

RT	6	0	2	4	1	3	9	0	1	5	10	2	11	2	1	3.80	3.53
OT	16	15	12	11	19	15	11	2	16	17	21	21	14	5	13	13.87	5.10
JT	8	0	2	2	7	0	1	0	1	1	4	1	7	0	5	2.60	2.75
COMP_ ENG_POL	8	9	0	5	3	10	5	1	2	3	5	1	9	2	5	4.53	3.12
COMP_POL	3	0	2	3	0	2	3	2	0	0	2	0	5	0	2	1.60	1.50
CS	6	4	0	2	6	0	3	0	0	2	2	0	5	1	1	2.13	2.12
INT_MEAN	4	0	5	2	3	1	1	0	0	1	2	4	4	1	2	2.00	1.59
COMP_ENG	3	0	2	4	0	3	3	1	0	2	2	1	5	0	3	1.93	1.53
INF_FORM	16	2	9	17	5	10	10	1	3	3	5	4	13	5	8	7.40	4.84
INF_MEAN	6	1	3	5	1	3	3	0	3	4	6	2	11	1	2	3.40	2.68
MLR	6	1	13	13	8	19	16	3	7	4	8	4	13	12	4	8.73	5.13
ATT_FORM	0	5	8	3	3	0	0	1	2	2	0	7	0	0	2	2.20	2.54
SOU_TH	9	6	0	1	1	3	4	1	0	3	3	0	3	1	3	2.53	2.39
REF	6	0	11	5	1	5	7	2	4	2	0	1	10	4	0	3.87	3.40
PREV_KN	0	3	2	2	0	3	0	0	0	3	2	2	6	0	0	1.53	1.71
REF_RULE	3	0	4	7	2	5	2	0	4	1	0	1	5	0	2	2.40	2.12

Table A6. Frequency counts and descriptive statistics for cognitive strategies in the grammaticality judgment (GJ) tasks in the monolingual group (MG).

Strategy (GJT)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**	**M13**	**M14**	**M15**	**Mean**	**SD**
SRA_ENG	11	0	7	0	5	7	0	12	0	0	1	5	6	1	6	4.07	3.99
RA_ENG	3	24	7	24	19	3	23	5	23	23	23	15	14	23	17	16.40	7.86
RW_ENG	0	9	0	7	12	0	1	0	0	4	13	7	5	2	3	4.20	4.34

RW_POL	0	0	2	0	0	0	0	1	0	2	0	0	5	1	2	0.87	1.36
RR	0	1	0	1	1	0	2	2	1	1	1	9	7	0	2	1.87	2.53
RT	10	0	1	0	0	1	2	2	4	1	1	5	5	0	4	2.40	2.68
OT	30	0	10	1	8	1	0	17	11	9	12	12	13	17	7	9.87	7.71
JT	1	0	10	0	0	13	1	12	1	0	0	5	2	0	4	3.27	4.48
COMP_ ENG_POL	0	0	3	1	1	3	0	3	4	0	2	7	0	0	3	1.80	1.97
COMP_POL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
CS	0	0	3	0	0	0	0	1	2	3	0	1	0	0	2	0.80	1.11
INT_MEAN	0	0	1	0	0	5	2	0	1	0	1	3	0	2	3	1.20	1.47
COMP_ENG	0	0	0	0	0	0	3	0	3	2	0	2	0	0	2	0.80	1.17
INF_FORM	5	0	1	6	6	16	3	17	2	9	4	6	5	7	10	6.47	4.73
INF_MEAN	4	0	4	0	1	17	0	6	5	1	1	7	0	0	3	3.27	4.34
MLR	15	4	4	9	11	8	1	6	10	7	0	9	8	0	7	6.60	4.08
ATT_FORM	1	1	3	0	7	2	3	0	1	3	2	1	3	5	0	2.13	1.89
SOU_TH	1	0	0	1	0	0	0	0	2	0	0	4	3	4	2	1.13	1.45
REF	0	2	1	1	1	1	1	0	2	1	0	6	5	0	4	1.67	1.81
PREV_KN	0	0	1	0	1	2	0	2	0	3	0	3	4	0	1	1.13	1.31
REF_RULE	2	0	0	0	0	4	0	2	0	1	0	0	5	0	1	1.00	1.55

Table A7. The frequencies and descriptive statistics for the occurrence of metacognitive strategies in the bilingual group (collated for both sessions and the three tasks: IP, GF and GJT).

	B1	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**	**B11**	**B12**	**B13**	**B14**	**B15**	**Mean**	**SD**
MAN	21	7	13	17	24	11	11	5	14	24	4	15	15	0	2	12.20	7.30
EXPL	7	1	3	7	8	2	6	2	2	2	1	4	4	1	6	3.73	2.38
CONF	16	6	5	15	1	10	8	4	4	10	1	3	8	1	7	6.60	4.54
DOUBT	14	13	19	10	5	2	7	11	14	12	7	25	0	3	4	9.73	6.55
UND	9	4	2	11	1	7	7	4	3	8	5	5	11	0	7	5.60	3.26
NO_UND	1	13	21	2	12	0	8	0	2	4	0	8	0	3	5	5.27	5.92
COR	10	3	2	16	4	5	11	3	3	7	4	6	11	5	8	6.53	3.83
EVAL	5	0	6	7	3	7	3	4	5	5	0	6	4	0	0	3.67	2.49

Table A8. The frequencies and descriptive statistics for the occurrence of metacognitive strategies in the monolingual group (collated for both sessions and the three tasks: IP, GF and GJT).

	M1	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**	**M13**	**M14**	**M15**	**Mean**	**SD**
MAN	11	23	11	7	5	6	11	5	13	5	5	20	15	5	4	9.73	5.72
EXPL	3	13	5	2	6	1	7	2	5	0	2	8	3	6	0	4.20	4.32
CONF	4	4	4	2	8	2	4	6	5	2	0	3	11	1	4	4.00	2.68
DOUBT	9	16	16	9	21	3	9	10	17	24	1	10	8	17	7	11.80	6.24
UND	0	2	2	1	1	0	2	2	4	6	1	9	4	1	4	2.60	2.36
NO_UND	9	18	8	14	5	0	7	16	8	7	12	3	0	16	4	8.47	5.52
COR	10	4	4	2	4	3	1	5	3	6	3	12	10	7	5	5.27	3.09
EVAL	2	8	1	0	0	2	2	1	2	2	0	8	1	1	2	2.13	2.42

Table A9. The frequencies and median values for the occurrence of affective strategies in the bilingual group (collated for both sessions and the three tasks: IP, GF and GJT).

	B1	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**	**B11**	**B12**	**B13**	**B14**	**B15**	**Median**
HUM	2	4	13	5	5	1	0	2	2	4	1	0	5	0	2	**2**
EMOT_POS	5	2	2	7	0	8	4	0	2	5	2	0	5	0	1	**2**
EMOT_NEG	3	0	4	1	6	0	3	4	4	4	2	9	3	1	5	**3**
COM	1	7	6	12	5	4	3	4	2	3	2	7	2	4	6	**4**

Table A10. The frequencies and median values for the occurrence of affective strategies in the monolingual group (collated for both sessions and the three tasks: IP, GF and GJT).

	M1	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**	**M13**	**M14**	**M15**	**Median**
HUM	6	0	0	0	0	2	6	0	3	5	0	2	0	6	0	**0**
EMOT_POS	4	1	0	0	0	0	0	0	1	7	0	2	2	6	1	**1**
EMOT_NEG	3	5	3	3	1	0	5	1	4	2	6	0	5	8	0	**3**
COM	4	20	3	4	3	0	9	3	4	9	2	1	5	6	1	**4**

JĘZYK OJCZYSTY JAKO NARZĘDZIE PODNOSZENIA ŚWIADOMOŚCI W UCZENIU SIĘ GRAMATYKI JĘZYKA OBCEGO

STRESZCZENIE

Język ojczysty ucznia, środek codziennej komunikacji oraz głęboko zakorzeniony w umyśle system form językowych i ich znaczeń, stanowi istotną podstawę w procesach uczenia się języka obcego. Ten zdroworozsądkowy pogląd nie zawsze był jednak doceniany w zaleceniach dydaktycznych, na przykład w podejściu komunikacyjnym do niedawna rekomendowano ograniczanie lub wręcz wykluczenie języka ojczystego w uczeniu się i nauczaniu języków obcych, kierując się argumentem, że zanurzenie ucznia w języku obcym stwarza optymalne warunki do nabywania sprawności komunikacyjnej w tym języku. Nie podważając zasadności stwarzania sytuacji komunikacyjnych w języku obcym w klasie, współczesne publikacje dostrzegają jednak kluczową rolę języka ojczystego w nauczaniu wielu sprawności i podsystemów języka obcego, a zwłaszcza – co szczególnie istotnie w niniejszej publikacji – w uczeniu się i nauczaniu gramatyki. Zainteresowanie tym zagadnieniem w sposób nieprzypadkowy zbiegło się z docenieniem wartości eksplicytnego nauczania gramatyki w wyniku empirycznej weryfikacji jego skuteczności, a także z uznaniem znaczącej roli świadomości ucznia w procesach uczenia się języka obcego, przede wszystkim jego gramatyki. Niniejsza monografia wpisuje się w nurt współczesnych rozważań na temat eksplicytnego uczenia się języków obcych, a jej głównym celem jest zbadanie roli języka ojczystego w podnoszeniu świadomości gramatycznej w procesie uczenia się gramatyki języka obcego.

Książka składa się z dwóch części, z których pierwsza (rozdziały 1 – 4) stanowi przegląd teorii i badań opublikowanych w literaturze przedmiotu, druga natomiast (rozdziały 5 – 7) ma charakter empiryczny i zawiera opis badania przeprowadzonego przez autorkę. Rozdział 1 poświęcony jest przedstawieniu pojęcia świadomości (ang. *consciousness*) w kontekście

nabywania języka obcego. Zebrane definicje świadomości wskazują na szerokie spektrum powiązanych pojęć, takich jak uwaga, zauważanie (ang. *noticing*), rozumienie, kontrola i wiedza, oraz na różne poziomy przetwarzania umysłowego, które stymulują świadomość ucznia. Świadomość, a przynajmniej pewne jej typy i poziomy, wydaje się odgrywać rolę na wszystkich etapach procesu uczenia się, od postrzegania wejściowych danych językowych (ang. *input*) aż po produkcję językową (ang. *output*). Nie dziwi więc fakt, że zajmuje ona poczesne miejsce w wielu teoriach przyswajania języka obcego, takich jak hipoteza zauważania (*Noticing Hypothesis* autorstwa R. Schmidta), teoria przetwarzania danych językowych (*Input Processing* autorstwa B. VanPattena), teoria przetwarzania informacji (*Information-Processing Theory* autorstwa B. McLaughlina), hipoteza produkcji danych językowych (*Output Hypothesis* autorstwa M. Swain) i innych. Wiele z tych teorii opartych jest na solidnych podstawach empirycznych – wyniki badań wskazują na pozytywną rolę świadomości, na przykład zwracania uwagi na dane językowe i zauważania istotnych elementów w nich zawartych, w analizowaniu struktur gramatycznych i ich przyswajaniu. Przekonanie o wartości świadomości jako czynnika ułatwiającego internalizację danych językowych i ich dalsze przetworzenie leży u podstaw podejścia do nauczania gramatyki nazywanego „podnoszeniem świadomości" (ang. *consciousness-raising*). Cechuje je aktywne zaangażowanie ucznia w odkrywanie wzorców gramatycznych i formułowanie hipotez na temat dostępnych danych językowych. W uczeniu się najważniejszy jest proces dynamicznej interakcji z danymi językowymi prowadzący do indukcji reguł i współzależności pomiędzy formami językowymi. Podejście to zostało dokładnie opisane, wraz z prezentacją opublikowanych badań weryfikujących skuteczność podnoszenia świadomości w nauczaniu języka, w rozdziale 2. Sekcję poświęconą temu podejściu poprzedza dyskusja na temat miejsca gramatyki we współczesnej dydaktyce językowej, a także przegląd najważniejszych podejść do nauczania gramatyki: nieinterwencyjnego (tzn. odrzucającego nauczanie gramatyki), eksplicytnego i implicytnego, a także podejść „focus on forms" i „focus on form". W rozważaniach na temat gramatyki jako komponentu nauczania języka podkreślić należy nierozerwalność jej trzech wymiarów: formy, znaczenia i użycia. Docenić trzeba również wpływ czynników indywidualnych, które warunkują skuteczność stosowanych procedur dydaktycznych.

Rola języka ojczystego uczniów w uczeniu się i nauczaniu gramatyki języka obcego jest tematem podjętym w rozdziale 3. Rozdział otwiera dyskusja na temat wpływu języka ojczystego na procesy uczenia się i używania języka obcego, zarówno z perspektywy transferu językowego, jak i z perspektywy przesłanek natury kognitywnej, takich jak wpływ wiedzy istniejącej w umyśle ucznia na przyswajanie nowej wiedzy oraz porównań międzyjęzykowych na świadomość językową i metajęzykową ucznia. Różnego rodzaju oddziaływanie języka ojczystego na proces przyswajania języka obcego oraz komunikowania się w nim stanowi kluczowy element niektórych teorii akwizycji języka, z których cztery zostały omówione w monografii: hipoteza analizy kontrastywnej (ang. *Contrastive Analysis Hypothesis*), hipoteza międzyjęzyka (ang. *Interlanguage Hypothesis*), teoria gramatyki uniwersalnej (ang. *Universal Grammar Theory*) i teoria multikompetencji (ang. *Multicompetence Theory*). Dalsze sekcje zawierają informacje na temat postrzegania roli języka ojczystego w rekomendacjach dydaktycznych formułowanych przez różne podejścia i metody, przegląd argumentów za i przeciw obecności języka ojczystego w praktyce nauczania języka, a także wybór praktycznych pomysłów na wzbogacanie procedur dydaktycznych o techniki bilingwalne. Z przeglądu opublikowanych badań empirycznych zawartego w ostatniej sekcji rozdziału wynika, że język ojczysty jest obecny na lekcjach języka obcego, a wyjaśnianie gramatyki należy do najczęstszych jego zastosowań. Wyniki badań wskazują również na pozytywny wpływ procedur kontrastywnych na przyswajanie wiedzy gramatycznej przez uczniów.

Rozdziały 1 – 3, poprzez omówienie zagadnień takich jak świadomość w przyswajaniu języka obcego, podnoszenie świadomości gramatycznej oraz rola języka ojczystego w uczeniu się gramatyki języka obcego, stanowią więc podbudowę teoretyczną pracy. Nieco inny charakter ma rozdział 4, którego funkcją jest zapoznanie czytelnika z metodologią badawczą stosowaną w badaniach poświęconych świadomości w przyswajaniu języka. Ze względu na specyfikę tej tematyki i badanych konstruktów, do technik szczególnie zalecanych w takich badaniach można zaliczyć: technikę głośnego myślenia, werbalny raport retrospekcyjny, notatki, kwestionariusz, pomiar czasu reakcji, okulografię, a także testy oceniania poprawności gramatycznej. Wszystkie te techniki są scharakteryzowane w rozdziale 4, a dodatkowo podkreślone są zalety stosowania metod hybrydowych w celu triangulacji danych.

Jak wspomniano, rozdziały 5 – 7 poświęcone są opisowi badania przeprowadzonego przez autorkę. W rozdziale 5 zaprezentowano zastosowaną metodologię badawczą, w rozdziale 6 przedstawiono uzyskane wyniki, a rozdział 7 zawiera ich dyskusję i interpretację w odniesieniu do pytań badawczych. Głównym celem badania było rozpoznanie roli języka ojczystego (polskiego) w podnoszeniu świadomości gramatycznej uczniów w procesie uczenia się gramatyki języka obcego (angielskiego). W badaniu zastosowano metodologię mieszaną, w której, poza protokołem głośnego myślenia, będącego podstawową techniką zbierania danych, wykorzystano testy (uzupełniania luk i oceniania poprawności gramatycznej, a także test na wrażliwość gramatyczną) oraz częściowo ustrukturyzowany wywiad. W badaniu wzięło udział 30 dorosłych uczniów języka angielskiego na poziomie początkującym (A2 według *Europejskiego Systemu Opisu Kształcenia Językowego*). W procedurze badawczej zostali oni podzieleni na dwie grupy: grupę bilingwalną (n = 15), która przetwarzała mentalnie teksty zawierające polskie tłumaczenia struktur gramatycznych, oraz grupę monolingwalną (n = 15), która przetwarzała teksty wyłącznie w języku obcym, zawierające również regułę gramatyczną. Uzyskane dane pokazały, że uczestnicy w grupie bilingwalnej stosowali więcej kognitywnych strategii przetwarzania umysłowego, zwłaszcza tych, które ujawniały przetwarzanie na wyższym poziomie świadomości. Częściej i z większym sukcesem stosowali też strategie międzyjęzykowe, takie jak translacja, choć strategie te były popularne również w grupie monolingwalnej. Analiza jakościowa stosowanych strategii ujawniła następujące funkcje języka polskiego w przetwarzaniu materiału w języku angielskim: ułatwienie rozumienia treści, ułatwienie postrzegania związków pomiędzy formą i znaczeniem struktur, efektywne dokonywanie porównań między-językowych, indukowanie form i znaczeń w języku obcym, potwierdzenie poprawności własnego rozumowania oraz ułatwienie formułowania reguł gramatycznych. Uczestnicy grupy bilingwalnej, zapewne w wyniku bardziej efektywnego przetwarzania danych wejściowych, uzyskali wyższe wyniki w większości testów wiedzy eksplicytnej. W wywiadach uczestnicy z obu grup wyżej ocenili przydatność tekstów zawierających polskie tłumaczenia niż tekstów wyłącznie w języku obcym w poznawaniu struktur gramatycznych oraz przyznali, że język polski jest dla nich istotnym punktem odniesienia w uczeniu się gramatyki języka angielskiego. Podsumowując, można stwierdzić, że wyniki badania uzyskane przy pomocy wszystkich

zastosowanych technik wyraźnie wskazują na ważną rolę języka ojczystego w podnoszeniu świadomości gramatycznej uczniów języka obcego.

Wnioski końcowe zawierają implikacje pedagogiczne sformułowane na podstawie otrzymanych wyników badania. Dotyczą one celowego, przemyślanego stosowania technik bilingwalnych w nauczaniu gramatyki, uwrażliwiania uczniów na skuteczność stosowania strategii odwołujących się do języka ojczystego, a także wprowadzania porównań międzyjęzykowych na lekcjach dodatkowych języków obcych i na lekcjach języka polskiego jako języka ojczystego. Implikacje te wynikają z przekonania autorki, że umiejętne czerpanie z zasobów posiadanej już wiedzy sprzyja podnoszeniu świadomości językowej i metajęzykowej uczniów oraz przygotowuje ich do efektywnej komunikacji w językach obcych.

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