

ADAM MICKIEWICZ UNIVERSITY IN POZNAN

Ph.D. Research

**Professional Knowledge and Awareness of
Teachers in Israeli Schools**

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Introduction

"Know Yourself" the philosopher Socrates advised.

In recent years, there has been a growing need for change in existing education systems in order to adapt to global processes in dynamic and changing reality. This need exists in the Israeli educational system and for that purpose, the Ministry of Education has promoted several reforms (see Chapter 3). Despite these efforts, there is still a gap between the stated goals of the reforms and the aspiration for the desired change and its actual implementation within schools.

Experience shows that teachers in Israel still teach according to the traditional approach, often teachers transfer knowledge and students are required to assimilate it (Berliner, 2011, pp. 287-302). Students of the new generation are required to learn through research, experience, interaction, and collaboration, with an emphasis on what interests them (Pape, 2009), and the task of teachers is to design learning situations and methods adapted to the child's development (Vigotsky, 2004. p. 126). Therefore, it is important to understand and learn the teachers work style and to understand the educational approaches that influence their work style, in implementing skills, in improving learning, using available research literature, combined with theory and practice, in achieving successes and failures, ability to collaborate with work colleagues to enrich the activities they perform (Illeris, 2011, p. 46; Berliner, 2011, pp. 287-302) and the use of the school environment as the workplace of teachers.

All of these factors are in the teacher's personal and environmental space (Clandinin, 2014, pp. 361-385) and are the outcome, to a greater or lesser extent, of the use of professional knowledge and teachers' awareness (Illeris, 2003, pp. 411-421). Teaching awareness is one of the most important factors of professionalism, regardless of the model of education (Kincheloe, 2007, pp. 1-60; Illeris, 2011, p. 46).

The aim of the work will be to examine and implement the professional knowledge and teacher awareness, for traditional or innovative teaching in an environment that includes scientific and technological development and the rapid changes that are happening in a global world, affecting teachers and students and their new needs in Israeli schools. Emphasis will be applied on differences of seniority and gender of

teachers and the unique elements and characteristics of the schools and their effects on professional knowledge and teacher awareness. Also, it will be creating a theoretical model and practical guidelines for developing professional knowledge and teacher awareness for improving and adapting teaching to the changing environment. Illeris theory is a social constructivist and links teacher awareness with environmental interaction. The importance of this approach is the balanced focus on thinking, emotion and the social context that includes culture and technological scientific development which is a necessity in a changing global world. This study and the definition of teacher awareness that the writer has developed is influenced by Illeris theory.

Research literature focus first on multidimensional teachers' knowledge describing the concept of "knowledge" from various fields of science, which grows over the years and its relation to awareness, understanding the characteristics of teaching knowledge, and examining the main types of knowledge that will form the basis for identifying and mapping the types of knowledge of the participating teachers. This is to analyze teachers' awareness of their types of knowledge and its use, in practical work at school with reference to the changing environmental and reality effects. The knowledge we learn with full awareness has a coherent meaning and understanding to develop capabilities that will enable us to cope with the practical challenges of life (Illeris, 2007. pp. 40-41). Understanding the teacher's knowledge leads to the need to know the models and the selected concepts in teacher learning with the aim of examining the impact of teachers' learning characteristics on improving the learning of teachers and their students, from a basic assumption that teachers learn like students and have to experiment on their own in order to teach the students. Also, opportunities and barriers to learning awareness among teachers that come from global reality and depend on certain contexts. All these are expressed in the application of knowledge in teacher teaching style. Teachers, like students, have unique learning styles and they are defined in the research literature as a derivative of classroom practice and teaching approaches (Kennedy, 2016, pp. 6-17).

While theoretical knowledge of "Professional knowledge" of teachers is broad, the concept of "Awareness" associated with teachers, has not received sufficient research interest. Chapter Two will discuss the theoretical approach to awareness as an interdisciplinary category while analyzing the various interpretations of science leading

to a broad spectrum in the definition of the concept of "Teacher Awareness". Professional knowledge and teacher awareness evolve through environmental interaction, so it is important to examine what the world's changes and challenges are today: Globalization characteristics, its factors, and its vague effects, which fundamentally change teachers' learning conditions and personal space (Morgenstern, et al., 2019, pp. 199-210). As well as the importance of the development of science and technology and their effects on the design of individual teachers' thinking. On the basis of all these, new modern human needs are emerging that are required for the younger generation and the acquisition of appropriate learning skills, As well as the need for teachers to educate young people while seeing the "big picture", So that students can conduct themselves in school and in life.

Teachers' environmental interaction is mainly expressed in the school as their workplace, so the third chapter will discuss the environmental components and the unique physical and organizational characteristics of Israeli society schools and their effects on professional knowledge and teacher awareness in Israel. The components of the school environment create a socio-cultural "reality" that largely dictates the organization of teacher knowledge and teaching pattern (Bruner, 2000, pp. 15-55). In order to understand the current state of education in Israel, will be examined the guidelines and perception of the role of the teacher of traditional education as well as, modern education and contemporary education. The gap between what is desired and what is found, leads to the importance of discussion about teacher training and professional development combining innovative professional knowledge and awareness of learning processes as a key factor in improving teaching quality.

Methodology - This research is based on the mixed method approach that combines two research methods of collecting and analyzing quantitative and qualitative data, both within the experimental diagnostic study, assuming that a collection of data from various research tools provides coverage of many types of knowledge, validation of findings, and a fuller understanding of a research problem than just quantitative or qualitative data (Creswell, 2014. p.48).

The first stage is diagnostic and quantitative, will be collecting statistics data, using a questionnaire. The number of quantitative research participants will be 90 science

and technology teachers from elementary Jewish schools in the Northern District. The second stage, quantitative and qualitative, innovative tasks will be given to participants in the experimental group (half of the study population). The other participants in the control group will not perform the tasks. The third stage is quality, data collection through a semi-structured in-depth interview for teachers. The fourth stage is diagnostic and quantitative, a test for the entire study population. Its purpose is to examine the impact of the intervention on participants and the completion of the study.

The analysis of the findings led to discussions and conclusions that were organized into three sections relating to the research objectives from different angles:

-Conclusions from theoretical considerations were built on the basis of literary theory.

-Conclusions from empirical research based on the findings of the research tool

-Constructing a teacher professional knowledge and awareness model as a tool for improving and changing teachers' teaching methods according to the changing environment.

Probably the results of the conducted tests will confirm the fact that the quality of the education system is measured by the quality of teaching done by teachers. Thus, in order to adapt the education system to a future dynamic human society, there is a critical need to develop professional knowledge and teacher awareness for innovative teaching adapted to future needs and learning characteristics. By doing so, teachers will be able to drive change in schools and ensure the quality of teaching-learning processes and also the achievement of the required international achievement.

The contribution of the research is to deepen the understanding of professional knowledge and teacher awareness in the Israeli educational system of the changing environment and their impact on their teaching work. Also, understanding the environmental components and unique characteristics of Israeli schools and their effects on professional knowledge and teacher awareness in Israel. In addition, understanding the personalization of the teaching profession may lead to improving the status of women and retaining young teachers in the education system through reward and mobility between roles. On a practical level, the use of designed tasks to develop innovative instruction has affected participants. The study forms the basis for a theoretical model of

awareness reinforced by the teachers' professional knowledge of the school and pedagogical guidelines on how teachers should prefer a modern style in professional functioning as well as integrate different types of cognitive, emotional and social knowledge and develop their awareness of scientific and technological development, participation in learning communities in the School and training teachers for the effects of globalization in education that is essential for all teachers and in particular for teachers with long years of seniority.

The present study is challenging to continue to explore professional knowledge and awareness of traditional or innovative teaching of managers, as those who lead the school's corporate cultural culture within the goal of promoting "self-management" and autonomy of managers to lead a unique vision of pedagogy and innovation.

1. Teacher Knowledge in Multidimensional Contexts

1.1 Knowledge – A Complex Phenomenon (Definition)

In the professional literature, there are many definitions of the concept of 'knowledge'. It is possible to explain the range of 'knowledge' in a hierarchical order. Knowledge is defined initially as a constellation of basic information that exists on a certain topic and steadily broadens to the implementation of the information to the ownership of knowledge that originates in scholarship and enlightenment. The acquisition of knowledge can be accomplished through abstract intellectual characteristics of knowing and through experience in actuality and acquisition of practical abilities and even the acquisition of abstract abilities such as 'personal knowledge from life' (Mirriam-Webster Dictionary).

The early empiricist philosophers defined knowledge as an outcome of momentary sensory experience, continuous or repeated occupation with something, or cumulative and increasing realization. The rationalists maintained that some of the knowledge originates in insight or thought and not in experience and is the outcome of our system of beliefs, which are based on our cognitive lens (Orton, 1989, p. 1). Knowledge, according to Plato, is a belief that has justification (justified true belief), whether through explanation or through definition. He holds that three conditions are necessary so as to say that the person knows a certain fact. (1) The person believes in the argument. (2) The argument is true. (3) The argument is justified. Or in other words, a person knows that 'something' he believes is true, even if this is true and if the person provides justification of his belief that this is true. (Plato, 1979, pp. 430-441). The shortcoming is that the knowledge may be not true since not all our beliefs are true. The philosopher Gettier held through counter-examples that the three conditions of Plato are necessary conditions but are not sufficient conditions. So as to ensure the justification required for the existence of the third condition and that the person knows, it is necessary to rely on the examination of the conditions and the subjective internal processes that led the person to the conclusion that a certain argument is true (Gettier, 1963, pp. 121-123).

Later, the philosopher Francis Bacon was among the first to argue that “knowledge is power”; as we know more about the world, it will be easier for us to control it and thus to improve our lives and extend them (Duncan, 2013). Eraut (1994) noted the definition of the philosopher of Ryle Gilbert, who differentiated between two types of knowledge. The one is ‘knowing that’ and the other is ‘knowing how’, when knowing what expresses a formal knowledge from an outside theoretical or philosophical scientific source that does not depend on the knower and is defined as public and not personal knowledge. ‘Knowing how’ is expressed in abilities and experience and is built by the knower and is unique to him. In contrast, Eraut defined knowledge in the broadest sense as “theoretical and practical understanding”, a perspective or product of our viewpoint (Eraut, 1994, p. 107).

In the field of psychology, knowledge is defined as a person’s basic need and addresses the human perception, the storage of information in the memory and its processing for the purpose of the production of meaning. The ability of the representation of the knowledge changes and is improved throughout the cognitive development.

According to Maslow’s theory of needs, a person aspires to realize himself and to develop his sense of ‘self’, which includes the emotions, thoughts, and perceptions regarding himself and his environment. He asserts that one of the person’s needs is to know and to understand. The organization of the individual’s personal knowledge is based on the needs and goals of the organizer and therefore he can deviate from the patterns of professions and disciplines accepted in society (Maslow, 1963, pp. 111-125).

Later, Piaget maintained that the person’s knowledge is accumulated and developed over the course of life according to psychological developmental stages that occur spontaneously and depends solely on the personal abilities. The person’s development depends on the acquisition of new knowledge (Piaget, 1972, pp. 489-509).

In contrast to Piaget, Vygotsky believed that the development of knowledge is performed through the cultural experience. According to Vygotsky’s theory, the person’s knowledge is not a product of culture and it steadily develops through social interaction, so that the person’s mental, cognitive, and emotional abilities represent the shared knowledge of the culture. Vygotsky maintained that two main ideas influence the knowledge: internalization – the absorption of knowledge from the environmental context

and zone of proximal development, and absorption of knowledge with the help of a peer. Therefore, it is not possible to examine the professional knowledge of the teacher herself, alone, but rather the professional knowledge in the social framework in which she is advanced with the help of peers (Vygotsky, 1978, pp. 34-40).

In modern psychology, knowledge is included in awareness. The knowledge includes experiences in a certain situation and at a certain time, stored in the explicit and implicit memory, in essence, in the acquisition of new knowledge the two systems are involved simultaneously. The knowledge in the implicit memory can be represented only through action and not verbally. In contrast, the system of explicit memory involves awareness, is based on rules, and can be expressed verbally. It includes semantic memory and event memory. Semantic memory includes the general knowledge and facts known to the person about the world, such as the meaning of words and different stimuli, characteristics of objects in the environment, and so on. Event memory is the memory of personal experiences. The two systems of knowledge are included in the person's awareness (Dietrich, 2004, pp. 746-761).

The sociology of knowledge is considered a unique area from the beginning of the 20th century and has focused on the social systems that create the knowledge, such as universities and schools (Burke, 2013, pp. 95-108). Already then Durkheim maintained that there are in society fundamental categories called collective representations and they constitute regular patterns of fundamental concepts that fill a decisive role in our knowledge in the guise of 'prior knowledge' and people are not aware of the fact that they based the knowledge and their outlook on it and thus in essence they projected on the reality different classifications and divided also people into different categories (Durkheim, 1995, p. 208). Veblen (1899) maintained that esoteric knowledge, the person's internal knowledge, is considered a universal truth since it derives directly from the practices and culture of the group. Later, in the 1950s, the functionalists perceived the knowledge as filling a role in the social system. In modern sociology knowledge is perceived as a holistic concept, shaped through society and shaping society. The term knowledge includes a variety of areas: science, ideologies, and systems of symbols that comprise the culture (Burke, 2013, pp. 95-108).

In the field of pedagogy, the term 'knowledge' according to the taxonomy of Bloom represents the cognitive level as memory of facts, principles, and structures in a given field (Bloom, 1956, pp. 62-86). Bransford, Brown, and Cocking (1999, pp. 17-39) differentiated between 'regular' knowledge and 'expert' knowledge that is expressed in attention to the characteristics of knowledge, the high mastery of content knowledge that indicates profound understanding, knowledge that cannot be reduced but is 'conditional' upon the circumstances, ability that is high and almost devoid of effort to reconstruct important aspects in knowledge, and flexible approach to new situations. According to their definition, a person who is not an expert is not aware of knowledge of these types. In addition, they maintained that professional knowledge is acquired, develops, and improves during the teacher's professional life. The experience in teaching and the engagement in knowledge enrich the constellation of professional knowledge and specialization. It is not possible to learn or acquire in the initial training the constellation of knowledge, skills, tendencies, and traits required for best performance; these are acquired, develop, and improve in the development of reflective and constructive awareness essential to the improvement of the teacher's work and the promotion of the education achievements (Bransford et al., 2005, pp. 1-39).

According to Tamir, the teacher's pedagogical knowledge is expressed not only in his expertise in the learning material but also in the different ways of communication and interaction between those and the unique characteristics of the learning environment (Tamir, 1998, pp. 5-14). According to the definition of the Ministry of Education, pedagogical knowledge is perceived as a resource that allows the person to cope better so as to realize his goals and it can be obtained in different ways. Human knowledge has a dynamic character, changing and developing frequently. It develops gradually, changes, and extends throughout the person's life. The person's ability to acquire new knowledge improves and becomes more efficient according to the cognitive development and thinking skills (Ministry of Education, 2009).

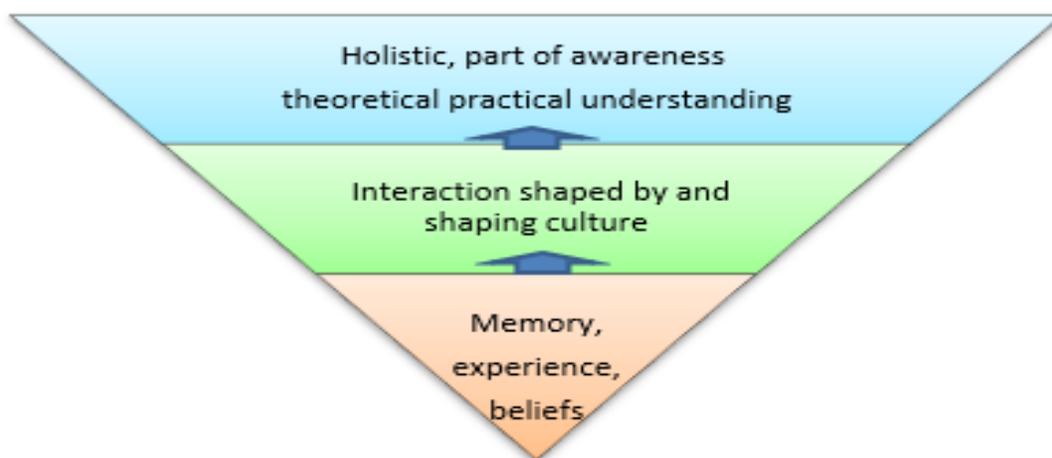
Pedagogical knowledge is associated with the didactic aspects of teaching and learning. Human knowledge is presented by the spoken and written language, so that the person who listens and reads becomes aware of the presented knowledge in a lingual manner on the linear continuum. This method of representation of human knowledge

influenced the linear perception of the curricula, which present the knowledge in a hierarchical and linear manner with predefined goals. However, the language representation cannot express all the human knowledge, since it has a dynamic, complex, and branching structure (Chen, 1995).

Pedagogical knowledge is guided by a multitude of theories, philosophies, beliefs and values that address the teacher's functioning and the teaching-learning dynamics (Clark & Peterson, 1986, pp. 255-296). Pedagogical knowledge can include different types, such as factual knowledge, conditional knowledge, declarative knowledge, universal formal knowledge, subjective knowledge as experiences and personal memories. In contrast to knowledge that expresses the world of contents, the components of thinking constitute a tool kit for the person, with which it is possible to create, clarify, and evaluate ideas in different contents. Differences between people, groups, and cultures are created following the complex interaction between contents and components of thinking (Kaniel, 2009, pp. 6-12). Moreover, the knowledge as a cognitive dimension is not expressed itself but in the integration of two additional dimensions, the emotional dimension of emotions and motivation and the social dimension of communication and cooperation. The three dimensions occur concurrently in the learning process (Illeris, 2003, pp. 411-421).

The development of the source of 'knowledge' in the different disciplines is presented in the following conceptual map.

Figure 1: Development of the Source of "Knowledge" in the Different Disciplines



Source; own elaboration

From the analysis of the review of the literature, it is possible to identify in the different disciplines shared principles that represent the range of the definition of the concept of 'knowledge' that is steadily broadening and the way in which it is expressed in the awareness: knowledge is a subjective human need, with a dynamic nature and developing over time. It is built slowly and persistently as a mosaic of different types through the concurrent use of emotions and interaction with the environment, and it includes the unique characteristics of the cultural social environment. Hence, the knowledge is a part of the human awareness. The way in which we organize the knowledge in our awareness influences the way in which we learn new knowledge. Our previous knowledge may promote or distort our learning. Awareness is one of the most important factors that influences the implementation and use of knowledge in familiar and unfamiliar situations. As the awareness is greater, the use of knowledge will be in diverse and interesting ways. As the awareness is more limited, the use of knowledge is more limited. The complexity of the concept of 'knowledge' leads to the need to understand what the knowledge of teaching is and to examine its different types.

1.2 Characteristics and Types of Teaching Knowledge

Different approaches define the knowledge of the teachers in general and through different models that differentiate between the types of knowledge of the teachers. Almost all agree that the knowledge of the teachers has a considerable impact on curriculum design and implementation (Peercya et al., 2015, pp. 867-893). As the teachers have richer knowledge in the field of content they teach, their ability to cope with the unexpected is greater (Schwab, 1973, pp. 501-532). Teachers must know the field of knowledge they teach. Teachers who do not have knowledge in the field cannot have the acquired knowledge to help the students learn it. At the same time, knowledge of the disciplinary field alone will not be enough for teaching. Teachers need to know the knowledge field in ways that will help them instill meaning in the students' tasks and to choose appropriate ways for teaching the topic so that it will be understood by the students (Loewenbers et al., 2009, pp. 289-407). The teachers have a significant role in the generalization of the knowledge, on the one hand, when they define their work as a

field of research and on the other hand when they can look at their work from the perspective of research studies and theories of other people (Sellermeir, 2008).

Knowledge by nature is very related to the task and to the way in which it is acquired and can include different types of knowledge, such as factual knowledge, conditional knowledge, declarative knowledge, universal formal knowledge, subjective knowledge as experiences, and personal memories. In contrast to knowledge that expresses the world of contents, the components of thinking constitute a toolkit for the person through which it is possible to produce, clarify, and evaluate ideas in different contents (Kaniel, 2009, pp. 10-17).

Knowledge according to Illeris (2007) is the dimension of content that we learn through full awareness of the fact that this is only a part of the important elements in the learning of content, the narrower form of cognitivism. The learner's abilities, insight, and understanding are developed through the dimension of content, what the learner can do, know, and understand, and through this we attempt to develop meaning, or in other words, coherent understanding of the different existing issues and to develop abilities that will allow us to cope with the practical challenges of life. As we succeed in this effort, we can function appropriately in the different contexts in which we are involved. The dimension of content is one dimension of the learning triangle and we add to it the emotional dimension and the social dimension, which are generally implemented simultaneously. The other two dimensions always influence and are influenced by the content dimension the learning addresses. For instance, new understanding or improved skill changes our emotions and motivation and the social conduct and the opposite is true (Illeris, 2007, pp. 40-41).

Shulman (1987, pp. 1-22) differentiated between three types of content knowledge of the teacher: knowledge of the content field, pedagogical knowledge of the content field, and curricular knowledge. The teacher's knowledge includes the process of the conversion of the scholastic content to the content of teaching, called pedagogical reasoning, through the adjustment to the students, connection between the content and the pedagogy. The essential knowledge of the teaching is 'pedagogical content knowledge', and this is the uniqueness of the teaching profession. The expertise of the teachers derives from their ability to present theoretical contents, ideas, messages, and skills through a

variety of ways of expression, which make a person who did not know and did not understand into the owner of knowledge (Shulman, 1986, pp. 4-14). Shulman (1988, pp. 31-38) defined eight categories of pedagogical content knowledge that serves as a basis for teaching.

1. Knowledge of the relevant content field: Understanding facts, concepts, structures, and principles in the field, how they are organized and are related between them and what the nature of investigation is, and raising and validating hypotheses.
2. General pedagogical knowledge: Pedagogical principles and techniques of effective teaching that are not limited to a certain content field.
3. Pedagogical knowledge of the topic: Different methods for teaching certain topics, from the understanding of the students' difficulties in the learning of certain material.
4. Knowledge of the instructional context and curriculum: Understanding curriculum and knowing the existing learning materials.
5. Knowledge of educational goals: Understanding the goals for which the teaching is planned, including the historical and philosophical background.
6. Knowledge of the learners: Knowing the students' traits, way of thinking, motivational aspects, and styles of learning, understanding the way in which the learning occurs, and implementation of this knowledge so as to promote the learning.
7. Knowledge from other areas: Knowledge that is not from the field of content but has relevance to the issue.
8. Knowledge of self: Awareness of philosophy and personal attitudes towards the teaching and the students and towards the school principals and awareness of the strengths and weaknesses in connection to the school processes (Shulman, 1988, pp. 31-38).

In addition to these, Keiny and Dreyfus (1989, pp. 53-63) addresses the teacher's personal professional knowledge. They found that the theory of the teacher is anchored in her personal past and it has influence on the teacher's perception of the class reality. Teachers tend to teach as they were taught. Teachers who learned in the conservative approach act according to it, and most perceive teaching and learning in the sense of the

transfer of knowledge (Soter, 1995, pp. 303-322). The teachers' knowledge is the outcome of a constellation of experiences during their lives. It is shaped according to the beliefs and perceptions developed over the course of their lives, which have considerable impact on the planning and performance of the curricula (Peercya et al., 2015, pp. 867-893). The role identity of the teacher and her perception of what teaching is at its best are related to her past experience, positive memories of teachers in the past, previous teaching experience or childhood experience related to learning and teaching, family members, and history of events she experienced in her life – all these shaped her personal data (Ben-Peretz et al., 2003, pp. 277-290).

Another theoretical and empirical model, with multidimensional reference to the teachers' knowledge, presents three types of knowledge that it is important to cultivate among teachers. The differences between the types of knowledge represent different perceptions of the nature of the teacher's teaching and thinking.

1. Knowledge for the purpose of teaching (from the outside inside). Knowledge that originates in theories and academic researches for the purpose of the improvement of the teaching about the teachers in the implementation of knowledge acquired from experts and translation to knowledge that originates from outside of the class to the reality inside the class. The teachers use this knowledge and do not create it.
2. Knowledge from the teaching (from the inside outside). Knowledge that originates in the 'wisdom of action' and is acquired when teachers understand and think about their work and learn from the way in which experts handle vague everyday situations. This is implicit knowledge of expert teachers. The improvement of the teaching of the teachers will occur through the giving of a space for true experience for the teachers, so that they can cultivate and build the knowledge from the personal experience.
3. Knowledge on the teaching (inside and outside). Knowledge that originates in the integration of theoretical knowledge and practical knowledge. The teachers build new knowledge in contexts relevant to the social, intellectual, and political topics and concurrently associate it with the work of fellow teachers. The teachers have a significant role in the generalization of knowledge, when on the one hand they make the work settings a research field and on the other hand they can look at

their work from the perspective of researches and theories of others. The theoretical knowledge and content are integrated in one another (Cochran-Smith & Lytle, 1999, pp. 249-305).

Lauer adds types of knowledge that address the teachers' teaching skills in the current era: knowledge on a variety of ways of teaching-learning and their influence on the students' learning and the motivation factors in learning, multicultural knowledge and difference among the learners – the influence of the personal, cultural, and social differences on the performance and ways of learning, the ability to adjust the teaching styles to the learning styles of the students, and knowledge on human development in the intellectual, social, physical, and emotional context (Lauer, 2001).

The teacher's knowledge is also influenced by the teacher's physical environment, his everyday work in the field, and his perception of the school methodology. Connelly and Clandinin (1990, pp. 2-14) found that knowledge of the school is knowledge that includes the school social experience that has considerable influence on the pedagogical knowledge and on the continuation of the ways of action of the teacher in the class. Local knowledge is knowledge learned through the affiliation to the community and it is unique to the culture in which the teacher grew, knowledge influenced by the teacher's experience as a learner and the experience of significant figures encountered during the teaching (Buchman, 1987, pp. 153-164). The teacher's knowledge has a social character and is determined by time and place, and in its people create interaction with the environment that includes other people, a certain culture, and a rapidly changing global world that proposes possibilities for learning without limitation. The school is a type of interaction, the 'how' and the 'who' of the interaction influence the learning (Illeris, 2003, p. 227).

Eraut (1994, pp. 227-252) maintains that professional knowledge includes all the types of knowledge and forms of thinking that characterize the contradictions: theory and practice, public knowledge and personal knowledge, statement knowledge and process knowledge, analytical thinking and intuitive thinking. The combination between the types of knowledge undergoes unique subjective processes that are expressed in the teacher's work. However, a gap was found between the teachers' declarations of the importance of

the diverse use of their knowledge and their work in actuality, which focuses on the transfer of material (Zohar, 2002, pp. 3-28).

Teachers do not always know to verbalize all their knowledge and its sources. A large part of the teacher's information cannot be fully conveyed to statement knowledge, in most of the cases because of the teacher's lack of awareness of her knowledge. The teacher has greater knowledge than she is aware of, and hence for the most part this is tacit knowledge, and the disclosure of tacit knowledge and its transformation into explicit knowledge will lead to the teacher's professional knowledge (Schoonmaker & Ryan, 1996, pp. 117-151; Shulman, 1988, pp. 31-38).

To conclude, the teachers' knowledge can include different types of knowledge, skills, opinions, understanding, insight, meaning, attitudes, and other terms that can serve also as types of knowledge. The questions that arise are as follows. Do the teachers know what they know? Do the teachers know what they don't know? The investigation of the teachers' awareness of their types of knowledge is no less important than the investigation of the teachers' knowledge itself or its development since the awareness of the knowledge influences the desire to attain it, to develop it, and to improve it. It is important that the teachers be aware of the fact that they can acquire knowledge without being aware of it; this is an action they do every day (Illeris, 2007, p. 17). The discussion of the different models that define the teacher's knowledge enables the illumination and analysis of five shared and prominent characteristics that include all the types of knowledge that develops and is deployed among teachers in the schools. The research study will focus on these types of knowledge.

1. Knowledge of self. The teacher's inner world, beliefs, opinions, and personality themes.
2. Self-knowledge. The general personal and practical types of knowledge of the teacher.
3. Professional knowledge. Content, pedagogical and curricular knowledge.
4. Knowledge of the environment and the school. The teacher's knowledge in the institutional context, the school culture, the social and organizational framework in which the teacher operates.
5. Knowledge of others. Knowledge of the learners and the colleagues.

The five types of knowledge focus on the teacher's internal and external world, the teacher's awareness between the internal knowledge and the external knowledge. The information about the different types of the teachers' knowledge will constitute a basis for the identification and characterization of the types of knowledge that the researched teachers use in their daily work in the schools in Israel. In addition, this information will constitute the basis for the analysis of the awareness or the lack of awareness of the teachers of the types of their knowledge and awareness of the way in which they use their knowledge in the practical work in the school with reference to the influences of the environment and the changing reality. The development of the teachers' awareness of their types of knowledge may be useful for them to plan the teaching and in addition for the recognition of the steadily increasing need in the modern world to adjust and improve the teachers' learning.

1.3 Selected Concepts in Teacher Learning

Many researchers have studied ways of learning of teachers so as to examine their influence on the improvement of the learning of the teachers and their students. Professor John Hattie (2009, pp. 43-237) examined through meta-analysis, the combination of a number of research studies related to similar variables, the following main factors that improve the learning:

1. The learner's characteristics – Personal motivation, self-knowledge, concentration, and perseverance.
2. The home characteristics – A higher social-economic situation indicates better learning resources for learning, parental support, value-oriented education, and parent involvement in education.
3. The school environment – Large schools find it easier to acquire resources for the promotion of the learning. However, effective learning occurs in small groups through the collection of the learners according to ability.
4. The teacher's characteristics – Class management, design of the class environment, cohesion, and positive influence on the peers in the class, use of diverse teaching strategies, development of pleasant relationships, expectation of

the students to learn, avoidance of labeling the students, clear illustration, ability to ask questions in a logical order, and professional development.

5. Factors related to the curricula – The development of reading skills, the improvement of the visual perception, the improvement of the vocabulary, phonetic teaching, repeated reading, teaching for understanding, use of reciprocal teaching, reduction of the cognitive burden, disassembly and assembly of components of a problem, development of social skills, encouragement of learning through play, teaching for independent learning, use of methods for formative assessment.
6. Teaching approaches. Direct teaching, mapping, learning, cooperative learning, teaching for problem solving, interactive technology, development of the independent learning, peer mentoring, meta-cognitive learning strategies, learning teaching skills, learning verbalization and self-investigation strategies, development of skills of interaction between the previous knowledge and the new experience.

This is an implicit process to which most teachers do not have a direct approach and can only influence (Hattie, 2009, pp. 43-237). Following these findings, Hattie developed a model of teaching and learning on the basis of the idea of explicit teaching and implicit learning, with the goal of improving the influence of the teachers on their own learning and their students' learning. He found that the visible teaching and learning model is one of the most effective ways of learning. Indirect instruction is a method of learning in which the learning intentions and criteria for success are clear and transparent to the students (Hattie, 2009, p. 206). To instruct in an explicit manner, the teacher was required to define for herself the scholastic goals and the definitions of success in her lessons and also to know how all the students achieve these goals. This definition is based for the most part on high orders of thinking. In addition, the teachers are required to be creative so as to create comfortable patterns for the instruction and implementation of the principles. In explicit teaching, teachers need to be aware of their knowledge and aware of what every student thinks and knows and to think about the thinking of every student so as to create significant experiences that are suited to the student. They must awaken the students to think about their own thinking and to understand the need for other ways

of thinking to provide an answer. This activity is included in the category of meta-cognitive activity that engages in thinking on thinking and promotes cognitive abilities in different areas. The main message in this model is that what works best for the students is similar to what works best for the teachers: attention to the determination of challenging learning directions, being clear about the meaning of success, and attention to the learning strategies for the development of conceptual understanding of the teachers' knowledge (Hattie, 2015, pp. 79-91). Hence, explicit teaching links teachers clearly to the awareness through feedback and self-evaluation, in an intentional and aware manner, both in the context of teaching and in the context of learning.

The taxonomy of Bloom (1956, pp. 62-86) is a hierarchical system that offers another effective way of defining cognitive learning processes in different disciplines according to different levels of complexity. It is possible through it to define levels of knowing and thinking in every field and to examine the planned processes of teaching according to these goals. The taxonomy of Bloom is built of six levels:

1. Knowledge. The memory of facts, principles, and structures in a given field.
2. Understanding. Translation, interpretation, and extrapolation of a certain idea without necessarily addressing different material.
3. Implementation. Use of rules learned in the past in certain situations that are different from situations that the person knows from his previous experience.
4. Analysis. The division of the learning unit into parts that comprise it and understanding the relations between these parts. The goal of such an analysis is to clarify the material and its elements, to clarify its ways of organization, and the relations between the ideas.
5. Synthesis. The combination of parts and their assembly into a whole, in a way of model and structure that had not existed beforehand.
6. Evaluation. Judgment regarding the value of ideas, facts, solutions, methods, and so on in a certain goal.

This is a model of learning that serves the teachers primarily for the planning of the studies and the examination of achievements. In addition, it enables a basis for the teachers' awareness about their learning process and the students' learning process and to create action suited to the improvement of the learning. Like Hattie and Bloom, Mietzel

(2001), a researcher from the field of psychology of education, holds that profound understanding of the knowledge is a basic requirement for the success of the learning. Therefore, teachers who seek to improve learning need to disassemble knowledge and to choose the content relevant to their knowledge basis, what requires of them to know how knowledge is organized. Teachers with in-depth understanding can provide examples easily and to anticipate the results of their actions ahead of time and they are perceived as experts. The model of Mietzel, too, like other models, emphasized the importance of meta-cognition and cognitive processes as an important factor in the development of the learning and primarily learning in modern society and maintained that the teachers must know to adjust the learning to their needs and their students' and be capable of identifying erroneous perception from the assumption that there is difference between people.

The difference is expressed in the theory of Gardner (1983, pp. 14-26). Gardner criticized the concept of traditional intelligence and maintained that the human intelligence is not one intellectual entity but that all people have basic abilities in each one of the intelligences. Gardner proposed an alternative perception of the concept of 'intelligence' as an ability to solve problems or to create products in the framework of the community or certain cultural constellation and found that there are nine types of intelligence, which are different from one another and can connect to one another in everyday functioning: musical intelligence, movement intelligence, logical mathematical intelligence, spatial intelligence, language intelligence, moral intelligence, survival intelligence, interpersonal intelligence, and intrapersonal intelligence. Every person has a composition of intelligences that is unique to him and that influences the shaping of his personality and behaviors. The interpersonal intelligence is expressed in the learning of the teachers to understand others, with their expectations, emotions, feelings, and needs. This is the ability required primarily in the teaching profession, where use is made of verbal and nonverbal communication. Additional primary intelligence in the learning of teachers is intrapersonal intelligence, which defines the teacher's awareness of emotions, thoughts, and patterns of feelings, and thus influences her behavior. This ability enables the solving of problems in the broad field of the interpersonal relations and is based on the language of images of the self and others, thoughts, emotions, imaginations, and

feelings. The theory is aimed at the building of lessons with diverse materials and ways of teaching so as to strengthen the student's feeling of success and to raise his motivation to learn also in areas less suited to him and to promote positive self-esteem and willingness to cooperate (Shimoni & Levin, 1998, pp. 6-29).

The teacher's awareness of the existence of the difference will focus the observation of the children and their ways of work and will promote their general sensitivity to every student (Gardner, 1983, pp. 14-26). The difference in learning between teachers and students in the heterogeneous class is supported both in psychological (cognitive social) research and in Gardner's theory of learning that characterizes our period. These theories further the insight that part of the failure in the studies is attributed to the learning styles and not to the student's weakness. Therefore, there is importance to the teachers' awareness of the increased access to ways of teaching through the in-depth understanding of the appropriate learned material and the learning processes.

These theories derive from the constructive learning theories, which begin with the perception of Piaget on the nature of the learning processes. According to constructivism, people structure meaning actively on the basis of previous knowledge and in social mutual relations. Piaget (1972, pp. 489-509) established the development of the constructivist approach, which places the active learner in the center and sees learning to be an active process of the structuring of the knowledge. He maintained that learning is a personal building of knowledge in an active and self-directed manner, since people hold concepts and beliefs about the world around them even before they begin their formal studies. According to Piaget, the learning is a dynamic process that is characterized by independent activity on the investigation of the environment and the interaction with the environment. The interaction between the existing ways of thinking and new experiences creates the balance between the person's cognitive system and the external world and this change and development are created. Piaget holds that like the processes that occur in the biological system in the process of learning there are two processes that comprise the mechanism of balance of the person with his environment. The process of assimilation is the addition of new knowledge to existing knowledge, while the process of adjustment is the adjustment of existing knowledge to a new situation. The basic principle of learning

is discovery. Understanding is discovery or re-building through the re-discovery. Through 'assimilation', the learner attempts to interpret and explain the world through his knowledge. When new experiences contradict the learner's concepts and upset the cognitive balance, the learner performs 'adjustment' of himself to the new experiences. According to this model, the learning occurs through the building of a schema, feedback, building additional schema, and development of a mechanism of thinking (Piaget, 1972, pp. 489-509).

Constructivism has already become an accepted theory of learning and following it new approaches of teaching, learning, and assessment have developed. In recent years, most of the researchers see the learning as fundamentally social. Vygotsky developed a learning theory on the basis of the assumption that learning occurs in the social-cultural context. Everything is learned at two different levels: on the first level through social interaction with others and on the second level through the internalization of the internal mental structures. In the learning process, the two tracks intersect again and again. In addition, he maintained that there is a relationship between language and learning. Language is learned from the outside inside and is aimed at and influences the learning. Therefore, in contrast to Piaget, Vygotsky asserted that learning precedes development and not the reverse. Learned contents are sometimes only a means for the development of a learning instrument, such as attention, concentration, precision, and conclusion, which can be transferred from field to field (Vygotsky, 1978, pp. 34-40).

Leinhardt called the idea of social learning 'the most radical idea'. In addition to the multiple forms of knowledge and the importance of the role of prior knowledge, she held that learning is fundamentally social and therefore must be inseparable from involvement in the world. A person is social, and so is his thinking, and therefore the learning entails relations with other people and is influenced by social reciprocal relations and interpersonal relations between a teacher and student, among the students themselves, and between the teacher and other teachers or colleagues (Leinhardt, 1992, pp. 20-25). In the continuation, the educational research attributes considerable importance to the learning of peers as effective mediated learning based on the existence of a social process through the expression of 'multiple intelligences' found in the participants in the spirit of the ideas of Howard Gardner.

The theory of the 'community of learners' is based on the social constructivist theories, which perceive the learning as a social activity derived from the interaction with others, in which the individual draws from a common repository of thinking of all the group members and from the experience of the members in the group, and contributes to the enrichment of this repository. According to this theory, too, the teacher's important role is to mediate and examine the current level of learning of the members of the community, through the learning interaction. In addition, the reflection is an important tool through which the learner implements thinking and organization of the contents and addresses the target community and its comments. In contrast, the rest of the members of the community learn and enrich their knowledge in this topic and can respond and in parallel learn from mistakes. In the school where there is a 'professional learning community', the teachers acquire communication and cooperation skills that are primarily social and cultivate awareness of the need for cooperation and interaction with others so as to create culture of discourse, a critical dialogue, and teamwork. In addition, the teachers engage in learning in diverse ways, such as learning on direct experiences, self-research (reading and reflection), and by observing the activity of other teachers (Brown, 1994, pp. 4-12).

The most interesting is the model of Illeris, which describes learning in the workplace and draws the attention to the technical organizational learning environment, which enables opportunities for learning in the social environment. At the center of the model is the place of learning, or in our case, the school where the teacher works. Illeris maintained that professional knowledge is built in a social learning environment, or 'learning space' (Illeris, 2011, p. 46). Illeris defined learning through three different processes: cognitive process, emotional process, and social process. These processes can be learned independently, but they occur simultaneously. In his opinion, the learning that is perceived as an individualized phenomenon is a human holistic process that always includes a social element. The nature of the learning process is that the new experience connects with the old; the outcome of the individual's process of the acquisition always depends on what the person has already acquired in the past. The relationship between learning and awareness is created when we are aware of our learning, when we learn something, we know what we know. However, we can learn something without being

aware of it. The unaware part of the learning is implicit and is unaware but exists and can be brought into the awareness. According to Illeris, the cognitive dimensions of learning address the concept of 'awareness', which is described as an internal psychological process in which the learner builds meaning to knowledge, skills, emotions, and social interaction and develops broad understanding and ability to cope with the challenges of actual life. This process includes elements of transparency and meta-cognitive transformative learning (Illeris, 2003, p. 411-421; Illeris, 2007, p. 17).

The starting assumption is that the awareness undergoes a process of change through learning, all that the learner chooses to pay attention to. Therefore, the focus on internal situations is an important component, a component that helps the person undergo a change and develop into a person who sees to and cultivates the 'self', the other, and the environment (Johnson, 2005, pp. 36-40). Thus, the idea of the teacher's awareness and learning of knowledge takes into account the interdisciplinary viewpoint of the teacher on the teaching materials, which will be expressed in models found as linking teachers clearly to awareness. In addition, it characterizes the challenges of the modern world, through emphasis on the development of science and technology in the context of this topic, which influence the teacher.

To conclude, the different models and factors for the improvement of the learning will constitute a basis for the characterization of the learning processes of the teachers and their student and for the creation of a model of learning for the development of the awareness of the learning of the teachers and the creation of actions suitable for the need of the improvement of the learning according to two main general characteristics. First, personal learning characteristics include personal motivation, self-knowledge, perseverance, thinking skills, independent learning, diversification in the teaching methods, and use of direct teaching and learning. Second, environmental learning characteristics include interaction with colleagues, belonging to the professional learning community, response to difference, and interaction between previous knowledge and experience and new knowledge.

1.4 Opportunities and Limitations in the Learning of Awareness among Teachers

During the teacher's professional functioning, there are many opportunities for the learning of awareness, but conversely there are more than a few barriers that the teachers encounter in the teaching work that make the learning for awareness that is not always aware difficult. The limited recesses in the school, whether they are short breaks for the change of teachers and lessons or lengthy breaks, are precious time for both students and teachers. For teachers they are a necessary part of the learning process and the awareness for the learning materials, for peers, for discourse of the teachers' room, for personal conversation with the student and for the formation of meanings learned in the lesson (Gotterman, 2009, pp. 72-74). In addition, the recesses in the school reveal the school norms and the undeclared conventions and bring up what occurs in the school beneath the surface, the recesses reflect the school culture and the lifestyles in the school in the most honest and direct manner (Gottman, 2012, p. 1). Since the recesses are by nature free time, unplanned, they may serve the teacher as a strategy and opportunity for the learning of personal awareness and her environment during the everyday work in the school.

Another opportunity in the work environment is an environment that encourages autonomy and self-management, and it is gaining greater momentum in recent years in schools around the world. An autonomous educational institution is managed independently through organizational resources to which it has access, which enables him to perform local and quick processes of change according to authentic needs, through flexibility and adjustment to the changing reality, such as the setting of curriculum, methods of teaching, learning, and assessment, professionalization of the educational staffs and school infrastructure (Nir et al., 2016, pp. 1231-1246). The open organizational climate is based on trust and enables the teachers professional autonomy that influences the teachers' awareness and behavior, such as initiative, aspiration to innovation, cooperation with fellow teachers, enjoyment, pleasure, empowerment, high commitment in making decisions for the creation of environmental change, accountability that is expressed in awareness of the school behavior (Friedman, 2010, pp. 1-14). In addition, in contrast to the work environments characterized by control, the autonomous environment

tends to reinforce internal motivation (Pelletier et al., 2002, pp. 186-196) that looks at the person himself as having self-orientation and reinforces three needs: self-efficacy, social interaction, and awareness (Ames, 1990, pp. 152-167). As the teachers define themselves as having higher motivation and self-orientation at work, they will develop broader awareness in the teaching work and will teach their students to develop awareness (Pelletier et al., 2002, pp. 186-196).

The school as a multicultural heterogeneous environment may offer an opportunity for the development of social awareness for teachers and students. Lemm (2000b, pp. 117-121) maintains that the school in its present format establishes social gaps, such as reinforcement of excellent students and harm to the self-confidence of the weaker students. In addition, Su (1996, pp. 117-133) addresses the cultural gaps. She found in her research that teachers from minority groups see themselves as agents of social change and they have considerable motivation to correct their learning experience. As students in mixed schools, they experienced low expectations, lack of a model of imitation from teachers who were not from minorities and the silencing of their voice versus the 'white' culture. Consequently, they felt rejected and discriminated against, in light of their life experience they come to the teacher training with high social awareness and strong desire to change the existing situation. In Israel, Alhaj (1995) holds that the status of Arab society as a minority group leads to the adherence to traditional values and to their preservation and therefore Arab schools became an authoritarian place that forces itself on the teachers and the students. On the one hand, the teachers prefer to fit into the 'culture of silence' and to dedicate to the norms of the establishment so as to meet the social expectations of them and to be a part of the consensus. On the other hand, the teachers assume a social status: the teacher is perceived as having the exclusive authority in the classroom and forces his opinion on his students. According to Lemm (2000a, pp. 217-254), a multicultural heterogeneous framework that educates for one uniform culture will lead to cultural, nationalist, domineering, and undesired chauvinism. To be freed of this, it must cultivate the cultural social awareness of the differences between one person and another and reinforce the critical approach of the individual to himself and to his culture and the adoption of attitudes and involvement in the global society in which he lives.

Alongside opportunities, there are barriers, such as absence of formal professional development for the development of awareness of the knowledge of teachers in a changing environment. Zohar (2002, pp. 3-28) maintains that teachers do not undergo training that causes a significant change in the structuring of their pedagogical knowledge. As students, they learned in the traditional way of the inculcation of knowledge and did not try innovative learning and therefore their beliefs are based on this experience. Tamir (1997, pp. 7-19) studied approaches for teaching of the Israeli student teachers and found a gap between the declared beliefs and their personal preferences. However, when they were asked about their personal preferences, they responded that they preferred the teaching of the inculcation of knowledge, which is traditional. To effect a change in their beliefs, it is necessary to integrate in the training of the teachers the development of awareness about their previous knowledge and beliefs. In addition, reflective methods can enable a dialogue of learning between life experience and our awareness (Jordi, 2011, pp. 181-197).

Another barrier is the lack of self-confidence of teachers. Goskov holds that the educational system experienced a crisis in the teachers' authority, which is steadily worsening in recent years. He attributes the factors to the characteristics of the current era that is characterized by the general blurring of the boundaries between the world of the children and the world of the adults. The authority of the knowledge is no longer necessarily found with the teacher (Goskov, 2016, pp. 70-102). The teachers are the human capital of the educational system and society; therefore, every attempt to promote the educational system obligates investment in the teacher herself and the rehabilitation of her belief in herself and in her ability to function as an educational leader (Alhaj, 1995). When a teacher believes in herself, she is aware of the way in which she processes experiences and produces from them meanings and she has higher ability to build trust with others (Gramston & Costa, 1999, pp. 38-43). The lack of authority and self-confidence of the teacher may constitute a barrier for the development of awareness because of her constant need to survive and lack of availability to learn. Leaving this crisis entails change of the teachers' reference to the concept of educational authority through the development of awareness of the roles and the adjustment to this time (Goskov, 2016, pp. 70-102).

Another barrier to awareness that characterizes the current era is contradictions and dilemma in the teachers' world of knowledge. Shkedi and Horenczyk (1995, pp. 107-118) indicated the teachers' dilemmas in the perception of the learning contents versus the student's needs in the changing environment, which in the end cause them to subordinate the use of innovative tools to traditional pedagogy (Wood & Geddis, 1999, pp. 107-119). The school knowledge that exists in the schools is knowledge based on 'correct' answers, lesson plans, and material the students will be tested on and thus the teachers must teach. The view of knowledge in this way is not commensurate with innovative learning (Schon, 1987, p. 107). To overcome the lack of confidence of the teachers regarding what they teach and their difficulty coping with the confusion and surprise that are part of the contemporary world of teaching, the teachers must develop active awareness of changing situations, find the insights about the pedagogical intentions and their importance, and from these insights create fit between what they believe and how they convey this in actuality (Wood & Geddis, 1999, pp. 107-119).

The structure of the time constitutes a barrier for learning that characterizes our life, which is controlled more and more by the clock and in the educational system according to the time schedule, regardless of the content of the activities. Our free time is more suited to the time structures, and to cope with this unrelated variety a modern person uses a number of routines that mean rejection according to the time structure. The need for repression and rejection occurs naturally in every society; this is a basic condition for the establishment of society but with all the surrounding time structures that developed in modern society, this situation reached a point at which a very developed system of internal constraints of every member in society is required so that he can function (Leithäuser, 1976). The time at the disposal of teachers in the school is not enough to complete the tasks and the many requirements dictated to the teacher at this time and they are required to forego certain tasks. Teachers report that they do not have the time to meet in teams for the purpose of learning and performance of any reflection on their work. The lack of time during their day of work obligates them to perform a wide variety of short and segmented actions instead of long and in-depth actions (Oplatka, 2012, p. 30).

The unconscious constitutes another psychological barrier. Freud described defense mechanisms such as personal inhibitions and repression of intolerable drives that are repressed to the unconscious realm and can influence the learner's behavior in all sorts of uncontrolled ways. According to the Freudian model of the mind, the awareness is divided into three parts: the unconscious, the pre-conscious, and the conscious. The conscious is all that is in our awareness at a given moment and is considered a small part of the entire consciousness of the person, the 'tip of the iceberg'. The pre-conscious is something that is not thought of at a given moment but it is unavoidable that we will recall it in the future. The unconscious includes concepts that do not at all come into the awareness in an explicit manner but through dreams or Freudian slips. It includes emotions, drives, and desires as well as unpleasant contents that disturb the person in his life routine. Psychoanalysis holds that memories and experiences that threaten the person and are related to his biological drives are repressed to the unconscious and thus they do not cause the person mental distress but from their place in the unconscious they continue to influence the person's life. Some psychologists compare the unconscious to the mental 'basement', in which the repressed materials are accumulated and from which they seep into the person's conscious life (Freud, 1966, pp. 290-336).

Illeris (2007, pp. 160-174) asserts that barriers for learning derive from the defense of learning that occurs before the learning and the objection to learning that occurs versus the situation of existing learning. The defense of learning derives from the need for mental defense; this is one of the barriers of learning that exists in us as a personal defense mechanism against drives and influences that we are all exposed to in modern society, which rejects most of the experiences we less like or are interested in but sometimes also rejects experiences from which we may benefit but with which the awareness cannot cope. Illeris addresses the theory of social psychology of Leithäuser (1976), who identified two types of defense against learning: 'everyday consciousness', which is expressed in statements such as 'of course I know this' about something new and unknown, emphasis of shared traits, "this is not my field", "this is truly not a problem", and 'identity defense', which is expressed primarily as a result of the constant changes that influence us to the point that they cannot be avoided, in our work life, in our

private life, and in our areas of interest. We are exposed all the time to changes with important meaning to the way in which we live our lives.

On the one hand, all this creates considerable learning that can contribute to development and enrichment, but it also can be powerful that raises a constant need to meet the pace of the changes and to change our existence and ourselves accordingly. In such cases, we make use of 'identity defense', since this is a type of defense that develops along with the identity and serves it. Identity defense is generally expressed in situations of learning and education intended for organization, re-training, or personal development or alternatively a situation in which there is the need to destroy the existing identity and build a new identity. This is the strongest defense mechanism against learning. Objection to learning can occur when in general or in a certain situation a person feels powerless or unable to influence the conditions that obligated the course of action that otherwise he would not enter into. In modern societies that define themselves as democratic, most people expect to be able to decide by themselves what they will learn or will not learn. In the modern era and the transition to modern knowledge society, it seems that this problem is assuming new dimensions. Illeris holds that on the one hand barriers to learning may prevent or inhibit conscious learning. On the other hand, objection to learning occurs with the recruitment of energy to object to what occurs, which almost necessarily says that learning becomes conscious. Therefore, he concluded that defense against learning tends to eliminate conscious learning while objection to learning tends to inspire conscious learning (Illeris, 2007, pp. 160-174).

To conclude, opportunities and barriers for learning awareness of teachers may be from personal sources and from environmental circumstances that are an outcome of the global reality and that depend on certain contexts. The barriers inhibit learning for consciousness and/or its implementation. A teacher with awareness and without the ability of the implementation of the learning in practice in everyday life will experience lack of independence and empowerment. Empowerment is the person's recognition of the right to act independently and to use self-awareness to investigate and discover the ways to do so (Bogler, 2005, pp. 76-98). The identification of the barriers to the development of the self and the increase of the awareness of these barriers among the respondents will allow the teachers to improve their learning and to avoid in the future additional barriers

to awareness. The realization of the opportunities for the learning of the awareness will emphasize the perception of the awareness as an intuitive process that occurs in the teacher herself and between the teacher and her environment in the framework of a certain belonging and in a certain context, a process that includes a transition from a situation of passive awareness to active awareness and the teacher experiences an internal and external change. The internal process is expressed in the teacher's attention to and understanding of her knowledge, while the external process is expressed in the implementation of the knowledge in the work style that the teacher adopts for herself.

1.5 Style of Work and the Process of Building Teacher Knowledge

The teaching style is the teacher's way to fulfill her main task, the teaching. In this role, the teacher must motivate her students to learn and to prove that they indeed learned. The style of teaching influences the nature of the reciprocal activity in the class and the emotional atmosphere in it, and these have direct influence on the motivation for the studies and the achievements (Mahlav, 2003, pp. 30-42). The different teaching styles enable the teacher to choose to adopt each one of them to every topic and at every level, and they offer the teacher considerations in the teaching. They are defined in the research literature as derivative of the class practice, theories, and teaching approaches (Kennedy, 2016, pp. 6-17).

Democratic education is an approach in humanistic education, a product of progressive education, when its roots lie in the doctrine of philosophers such as Rousseau and Pestalozzi and expressed in the theory of John Dewey. This education is based on the view of the person as a whole in his own right, who has basic rights: freedom of choice, freedom to learn, and equality. Democratic education is shaped in its present form with the appearance of networks of democratic schools in recent years in the world and in Israel (Hecht & Ram, 2008, pp. 336-358). The teaching style of the democratic teacher is as an instructor and helper and it enables relationships of truth between the educator and the educated person that are characterized by openness and honesty for the creation of the following principles:

1. Fulfillment of abilities. Cultivates the learner's self-image and focuses on his strong points so as to cultivate him as a social leader.
2. Relevance. Links the new knowledge to the world of personal experience, failure is perceived as a basis of new learning.
3. Activeness. Emphasis on internal motivation, addresses the school as a field of experience and training for the creation and shaping of the learners' lives, society, and environment.
4. Dialogic personal relations. Aimed at the satisfaction of the learner's basic personal needs for the purpose of an attentive conversation and open advice, which enable them to feel a meaningful part of the school.
5. Closing of gaps. Drawing groups closer and recognizing the theory of multiple intelligences.
6. Multiculturalism. Educating for cultural difference as a beneficial factor for the self-fulfillment and development of life skills, use of critical pedagogy, and emphasis of the need for social changes, social integration through mutual respect.
7. Tolerance and choice. Creates a learning environment that is supportive and pluralistic, encouraging freedom of choice and tolerance, addressing the current reality as a multifaceted and multidirectional reality.
8. Awareness of social accountability and the principles of democracy. Creates a connection to democratic behavior of government structures and society and partnership in them, awareness of the collective perspective and personal efficiency.
9. Partnership. Involvement in the learning decisions and in the social questions in the school (Argaman, 2011, pp. 269-292; Hecht & Rahm, 2008, pp. 336-358).

The personality themes of the democratic teacher are openness, communication, friendship, independence, taking responsibility, having influence, satisfied, effective, curious, with high self-esteem, confident in the self, and beneficial. The democratic approach that is steadily forming emphasizes the teaching in the class, the curriculum, and the development of the team and even helps the teachers build professional knowledge and skills and be aware of them (Pajak, 1993, p. 138).

Constructivist education, as the continuation of the progressive approaches from the 18th century onwards, is based on active learning and a process of discovery. According to the model of teaching of Bruner, the teacher must provide the student with conditions for discovery learning, must awaken the student using stimulating study material so as to preserve the initial motivation and to allow him to choose the information relevant to his tendencies and curiosity, to instruct the student closely, to encourage the student's personal involvement and to develop his independence, to be tolerant, to allow the students to work at their own space, to create an environment rich in stimuli and learning aids, to choose the learning challenge, so that it will be close to the student's world, to cultivate cooperation between students and successes and to prevent failures, to be available to the students for the purpose of guiding them in the journey of discovery, to be flexible and to allow the students to study topics related to their work, even if they are not on the curriculum, and to provide intentional help through the presentation of helpful questions. All this is through the reference to the continuum, active and visual spiral learning of the material and constructive criticism, which is positive and specific (Bruner, 1966, pp. 49-53). The constructivist teacher's work style is characterized by making the learners into solvers of problems on their own on the basis of the knowledge found in them, the help of students in searching for their understandings, and not only accepting the thinking of others, from the assumption that knowledge that is not expressed in the everyday is not useful and therefore is not meaningful for the learner. The teacher will equip the student with the 'toolkit' of thinking that will allow him the maximum resources so as to decipher and analyze the processes of learning through active learning and its implementation (Perkins, 1999, pp. 6-11).

The social style of teaching is related to constructivist teaching and expresses the perception that the processes of the acquisition of knowledge and understanding depend also on the group social processes and diverse processes of the creation of knowledge anew by learners. According to this style, the teacher is an instructor who places at the center of attention the needs and interests of the student and instead of transferring knowledge to the student the teacher will awaken a dialogue in the lesson and will emphasize the meaning of negotiations. The knowledge does not come from the outside

but is created in a process of the interaction of the teacher and the student. The learning occurs in the social context and in small groups, pairs, separately, through important learning strategies, inquiry, discussion, and thinking skills (Yecheili, 2008, pp. 40-44). The Jigsaw method developed by Aronson et al. (1978) and the Teams Games Tournaments method (TGT) developed by Slavin et al. (1990) combine principles of cooperative learning in groups. Work in groups channels the energy into the learning process and provides social needs for belonging, acceptance, and influence. The teacher uses the group of peers as a motivating power to promote academic goals. The students can exchange opinions, ask freely, explain to one another, clarify difficulties, help one another understand ideas in-depth, and express their feelings towards the learning. Students in the work group do not compete with one another in the solving of problems. The interaction between the group members is intended to enable every individual to learn the strategy of problem solving (Davidson, 1990, pp. 335-358).

Liberalism is one of the primary responses to the contemporary phenomenon of pluralistic society. Tolerance is one of the important tenets of the liberal perception. The personality of the liberal teacher includes: she does not intervene, she foregoes her authority and does not undertake any leadership behavior, she preserves for herself only the principle of law, she behaves with restraint, she is willing to listen, and she creates sympathy for the troubles of repressed minorities (Hed, 2005, p. 113). She is a teacher who enables the students to acquire the confidence to undertake initiative, to solve problems, to form ideas, to develop skills in language, learning, leadership, and different cultures. This approach emphasizes thinking in different situations, clear expression in written, oral, and visual communication, organizational ability, tolerance and flexibility, creativity, and sensitivity to the issues of others and to moral and aesthetic values (Scott, 2014, pp. 23-24). A liberal teaching style will encourage the students to do things in new, different, and diverse ways, will offer the students a new challenge and a way of learning different from what they knew until now, and does not stop only with changes that occur in the learning process but prefers to diversify the method of evaluation (Carmi & Bochnik, 2008, pp. 101-106).

In contrast to the teaching styles that see the student in the center, the basis of the autocratic approach is a powerful and rigid perception. The style of teaching that relies on

this approach is closed, formal, official, in which the teacher is the manager and preserves the distance from his students. The communication between the teacher and her students is characterized by providing instructions and not by dialogue. In essence, real communication does not develop in this approach. An autocratic teacher decides and determines for the class. All the decisions are in her hands and there is no negotiation. All is performed according to her way. She gives specific instructions, she utilizes her authority, and she is found in a situation of full control over her class. The teacher knows what is good for the students and determines for them what they will learn and how. She needs to convey knowledge to the students, to inculcate in them habits and skills. She has the authority, and with the power of authority she controls, through reinforcement and punishment: as the students are more willing to obey, they are perceived as better students (Freire, 1972, pp. 75-79). The teacher closely concentrates the activity in the class, going into details, closely following up after the students' performances, and providing them with a feeling that they are being closely monitored. She utilizes the foundation of her legal authority status, reward and coercion, adopts a fixed approach, and does not act according to a changing reality, does not foster growth and adjustment of the teachers to the children's changing needs and abilities.

The class climate will generally be an atmosphere of hostility, competitiveness, high dependence, lack of influence, low image of the learners, negative emotions towards the school, and level of performance of the learners that is not commensurate with their ability (Dayan, 2002, pp. 207-231). The direct teaching style is presented in the book of Ausubel (1963) that is based on the deductive teaching method that places the teacher in the center. The learning is a process of absorption of information, the decoding of information, and the storage of information in an organized manner in the long-term memory, so that it will be possible to retrieve it as necessary. The teacher's role is to navigate the learning process as a three-stage process: the early organizing presentation, the presentation of details and examples, and last the association of the whole to the details (Ausubel, 1963).

Some researchers present the integrative teaching style that combines different aspects of the different styles and provides flexibility for the teachers to develop and adjust a personal style of the learners' abilities. The term 'blended learning' defines the

combination of online digital media and traditional methods, in which the student controls the time, pace, place, and path of learning, in combination with frontal learning (Oliver & Trigwell, 2005, pp. 17-26).

Modern teaching methods require the combination of teaching styles. The teachers of today are responsible for students with a wide variety of learning abilities, and therefore they must develop teaching styles that act well in diverse classrooms. Effective teaching methods engage talented students, as well as students who learn slowly and those who have attention difficulties. Hence, teaching combines different styles and helps reach all the students in a certain class and not only the few who respond well to a certain style of teaching (Gill, 2013).

Many researchers maintain that the teaching styles are acquired and shaped through the construction and addition of products that can be shared, preserved over time, and improved constantly (Rothkopf, 2010, pp. 164-179). In this way, it is possible to significantly influence the quality of teaching and the learners' achievements. In the first stage, the teachers develop new styles of teaching, and in the next stage they translate them into real situations of teaching and accordingly into learners and thus make them a work routine (Boyd et al., 2009, pp. 416-440). New methods for the building of the teachers' knowledge allow the teachers an opportunity to engage in personal building of knowledge through the building of a partnership in the professional community (Hawley & Valli, 1999, pp. 127-150). In addition, teachers who are involved in the making of decisions on the curriculum implement innovative styles in their teaching effectively (Deketelaere & Kelchtermans, 2006, pp. 71-85). When the teachers do not take part in these decisions, they do not feel committed and for the most part implement the curriculum in the traditional approach (Frank et al., 2001, pp. 653-689).

Conversely, some maintain that the frameworks for professional development are a traditional and not an innovative manner for the building of the knowledge of the teachers because of the fact that they are segmented and performed from top down (Day & Sachs, 2004, pp. 1-32). Moreover, the attempt to teach the teaching trainees teaching styles may lead them to focus on procedural aspects without understanding the goals at their basis and without reference to their place in the whole lesson or to the question why the teacher uses them. This may lead to their implementation at a mistaken time or place

or for incorrect reasons (Kennedy, 2016, pp. 6-17). A survey conducted by Chen, Kfir, and Adi (1990) on the degree of willingness of the teachers in the implementation of non-frontal alternative teaching methods found that although teachers recognize a variety of teaching methods, in actuality they use primarily the traditional teaching methods accepted and customarily used in the framework of the whole class, such as frontal teaching and class discussion.

The modern changes in the changing reality influence the learning conditions and the personal space of the teachers and influences naturally the teachers' awareness of the teaching styles they adopt (Sergiovanni, 1998, pp. 576-595). In addition, in recent years a new approach to the differences between the learners, with reference to many dimensions, is steadily strengthening. Aside from the ability of learning and the social, cultural, and economic background, emphasis is placed on learning styles that address the ways of absorption, ways of thinking, and ways of processing of the learned material, the topics of interest, motivation to learn, abilities, social skills, and so on. The difference between learners, which was perceived in the past in terms of 'gaps' that should be eliminated, is today perceived as a value that expresses a personal or social uniqueness that should be established and maintained.

Research studies from the end of the 1980s in the study of intelligence and learning and thinking styles led to the attribution of the failure in the studies to the learning styles and not to the student's weakness (Keshti et al., 2001). Effective teaching is teaching that broadens the differences between the students and does not reduce them. The reference to the learning styles facilitates the improvement of the learning process and obligates the use of diverse teaching methods, without differentiations that label certain learners as limited in their developmental ability (Gordon et al., 1994, pp. 99-104). The lack of fit between the teaching processes and the learning styles may cause failure in achievements (Bennett, 2015, pp. 11-13). Therefore, the teacher must be flexible and must not persevere regularly in one of the methods. The considerations that guide the choice of the method for the teaching of the topic need to include the level of the class, the duration of time allotted in the curriculum to the teaching of the topic, the nature of the learned material, the school climate, and even the teacher's personality. A teacher is more successful when she uses the teaching method that is commensurate with

her nature and temperament. Like among the students, among the teachers there are differences in the need for achievement, in the ambition, in the curiosity, in the need to exert authority, in the self-confidence, and in the openness (Mahlav, 2003, pp. 30-42). The teachers must develop active awareness of the teaching act that will help them use the professional knowledge in the best possible manner and increase their autonomy (Michaeli, 2015, pp. 21-25).

To conclude, it is possible to organize the teaching styles according to three main approaches: the first approach is focused on the teacher, the second approach is focused on the learners, and the third approach combines the two approaches together. These approaches represent different levels of the teacher's involvement, from full involvement to minimal involvement. There is no better style, assuming that not all the students respond well to a certain style. Every teaching style can lead to the building of the teaching knowledge and can also be a mixture of styles. Effective teachers are teachers who are aware of the changing reality and use a variety of styles and know how and when to choose the most appropriate one for the students in a specific situation. The workstyle can be composed of a variety of routine activities or can prefer one type of knowledge according to the target population in a changing environment. The three approaches of the teaching styles will constitute a basis for the identification of the styles of teaching among the respondents. In addition, the identification of the types of professional development among the respondents will constitute a basis for the examination of the ways for the building of the respondents' knowledge.

2. The Theoretical Approach to Awareness as an Interdisciplinary Category

2.1 Awareness in the Literature

In the accessible literature, there are many different definitions proposed by researchers that represent different disciplines and there is no one agreed-upon theory regarding the concept of 'Awareness', because of the gap between the objective scientific

aspect (Chalmers, 1995, pp. 200-219). The Awareness constitutes an essential problem for the scientific perception since it is fundamentally a personal subjective experience, while science relies on objective and external information and every attempt to explain the private phenomenon in scientific terms fails in its goal (Levine, 1983, pp. 354-361). Nagel (1986, p. 13) maintains that the problem is temporary: the science of our time has not yet reached the stage in which it is possible to make such use of information. According to another approach, we cannot examine the Awareness because of its natural limitations do not allow it to be investigated (McGinn, 1991, p. 73). The awareness cannot be observed since it is subjective, and there is no differentiation between the observer and what is observed (Searle, 1992, p. 97). In essence, the use of any language to describe a private experience is destined to be limited (Wittgenstein, 1958, p. 243). This complexity placed before many thinkers a scientific challenge to describe the world that includes both the person himself and the gap between the body and the mind and the boundaries of the awareness (Levine, 1983, pp. 354-361; Nagel, 1974, pp. 435-450).

Until the end of the 19th century, consciousness in the field of philosophy was understood in terms of a collection of internal feelings. René Descartes (1641) maintained that mind is a non-physical material and constitutes something that thinks, *res cogitans*. He formulated in a modern manner the dualism that defines the relationship between mind and body, and in essence he is the first to connect the mind with the consciousness and to differentiate it from the brain (the place of wisdom). In his book *Meditations on First Philosophy*, he maintained that there is no difference in the content of the sensory experience between a dream and consciousness, and thus he disputed our beliefs that what we absorb is a precise reflection of the true world. According to Descartes, The body and the mind are separated and the action of consciousness is the necessary ‘glasses’ through which and only through which we perceive and understand the reality. The disadvantage of the consciousness of Descartes is that it is limited, since it eventually discovers that ‘inside’ there is an indisputable necessity of thoughts that we cannot not have (Weinrib, 1990, pp. 137-155). Philosophers from the 18th century used the concept of ‘consciousness’ so as to differentiate between the ability to think ‘reason’ and the ability to feel ‘sentience’. Duval and Wicklund (1972, p. 4) developed a theory of ‘self-awareness’ based on the assumption that awareness is two-way. A person may be

focused either towards himself or towards the outside environment but not in both directions simultaneously. Ickes et al. (1973, pp. 202-219) found that when a person receives first positive feedback and feels good in relation to himself, objective self-awareness can lead to increased self-esteem and influence him positively.

In modern Western philosophy, 'awareness' is defined in the experiential aspect described through the concept of 'qualia', or in other words, the subjective feeling that we experience as an input of our senses and feelings. Its shortcoming is that it is limited in thinking, an independent entity influenced by the brain. Many theories exist in this field, and their goal is to provide a scientific explanation of the experiential aspect through ongoing follow-up of the reports on the details of the respondents' experience (Varela, 1996, pp. 330-349). Awareness is primarily the physical act of perception; it is a subjective way of being influenced in actuality, it is understood for the most part as a process that engages in information on the acceptance of messages through the connection of their processing through internal models and action programs in a given person and primarily enables an orientation of the outside reality (Bargh & Kazdin, 2000, pp. 347-348).

In the past, the psychologists compared consciousness to the mind. They defined psychology as the study of the mind and the consciousness and used the method of introspection so as to research awareness. In other words, the respondent himself performs an internal look into his inner world (Wilhelm, 1902, p. 172). In Freud's psychoanalysis, the level of human mind includes everything in us, a certain degree of selectiveness. According to the topographic model of Freud, the mind is divided into three layers of consciousness: conscious, pre-conscious, and unconscious, a concept that he coined for the first time. The conscious layer is the single layer accessible to the person, and in it there are a limited number of items that we perceive at a given moment such as feelings, experiences, emotions, thoughts, memories that the person is attentive to at a given moment. The information at the conscious level comes from the senses, as long as it is not threatening, and information from the pre-conscious layer is required for the conscious. In addition, contents from the unconscious that slipped out from it may also reach the conscious. The time that information is found on the conscious level is most short, and it changes at a high frequency. The pre-conscious layer includes a collection of

contents and memories that the person experienced and learned during his life, and the unconscious layer includes drives and memories that the knowledge of which would threaten the person and cause anxiety and thus they are blocked to the conscious and the person does not know of their existence (Freud, 1966, pp. 290-336). According to Freud, these materials route to a large extent the way of thinking and behavior of every person (Mocnahoft, 2000, pp. 105-138). Both introspection as a research method and awareness as a topic for research declined in status with the rise of behaviorism in the beginning of the 1900s, which sought to transform psychology into an exact science and maintained that internal events can be observed only by the person who experienced them and the assumption that the person can be an observer from the side when he himself acts and feels the experience is erroneous (Watson, 1913, pp. 158-177). Nisbett & Wilson (1977, pp. 231-259) discovered that frequently subjects did not succeed in explaining precisely the reasons of their behavior. In addition, they found that different people produce in identical situations different introspections and therefore it is hard to reach conclusions. The engagement of the behaviorists with observable behavior caused them to neglect the topic of the awareness as a research object, since the subjective aspects that cannot be measured became irrelevant for them. From the 1960s onwards psychologists returned to know the topic of awareness from the understanding that the theory that leads to predictions examined in behavior may be an important contribution to the understanding of the mind's way of action (Bruner, 2000, p. 57). According to Sartre in 'existentialist psychoanalysis', which strengthened in this period, the emphasis in awareness is the ability to look at the individual's internality, to discover and assess the sources of power and weakness, the choices made, and the desire to change and correct and through them he gave himself his self-identity – the way in which the person perceives his life and not the processes and implicit psychological situations that shaped his personality, as Freud asserts (Luriah, 2001, pp. 176-247).

Modern psychologists define 'awareness' as a cognitive component that enables the absorption of stimuli from the environment and internal stimuli, such as thoughts, emotions, and physical feelings (Bargh & Kazdin, 2000, pp. 347-348). Psychological 'awareness' is the highest level of human functioning, since it is a delicate issue, depending on many factors. The awareness is understood as the level of mental

development to accept the other as a subject of an object (Sohlberg, 2000, pp. 135-151). The trait of unconsciousness is to break continuum. It separates between itself and the body (Shechter, 2014). James (1950, pp. 145-183) says that the awareness is a process. The processes of conscious and controlled information processing necessitate great resources of attention and thus they can be performed only sequentially, one after the other. They enable the collection and organization of information as schema in the memory for the long-term so as to improve the learning ability. The processed information includes the meaning of the initial information absorbed by the senses automatically and from it to the short-term memory that has limited capacity and then transferred to the long-term memory (Carlson, 2013, pp. 512-545). Goleman (1996, pp.231-240) thinks that awareness is a basic emotional and social need, beyond intelligence and wisdom. The person's awareness towards himself and towards the world is the main factor of success in life.

From a sociological perspective, experience and reality determine the awareness. Reality determines the manners of thinking because of the hegemony. According to the 'socialization' school, the individual develops awareness through social influence. This process lasts throughout the entire life and shapes the individual's personality. The individual learns and internalizes the values, norms, and roles accepted in his society and learns his culture. This process enables the transfer of culture from generation to generation, in other words, a process of duplication to the coming generation is performed (De Shalit, 1995). Weber, who belonged to the rationalist sector, maintained that the process of awareness is a two-way process (Weber, 1979, pp. 28-48). According to Berger (1967, p. 249), sociological consciousness is based on four motifs: debunking, unrespectability, cosmopolitan, and relativization. The debunking motif is the ability to see beyond what is explicit and implicit, the unrespectability motif is the ability to identify behavior that departs from the norms without moral criticism, the cosmopolitan motif is the ability to accept a variety of different behaviors and social riches, and the relativization motif is the ability to understand that not everyone sees the same things, not everyone has the same truth, and contradicting truths must exist together in the world.

In modern sociology, consciousness is a viewpoint that represents public attention to a topic, problem, or social, scientific, or political event. It is the human ability to

evaluate the objective reality and the ability to respond to it and includes knowledge of people about themselves, their actions, and responsibility for himself. The consciousness is the rich knowledge that each one of us has existence, actions with the outside world. It is limited by the senses and the memory but is understood by our functioning in a given space (Sillamy, 1994, pp. 54-55).

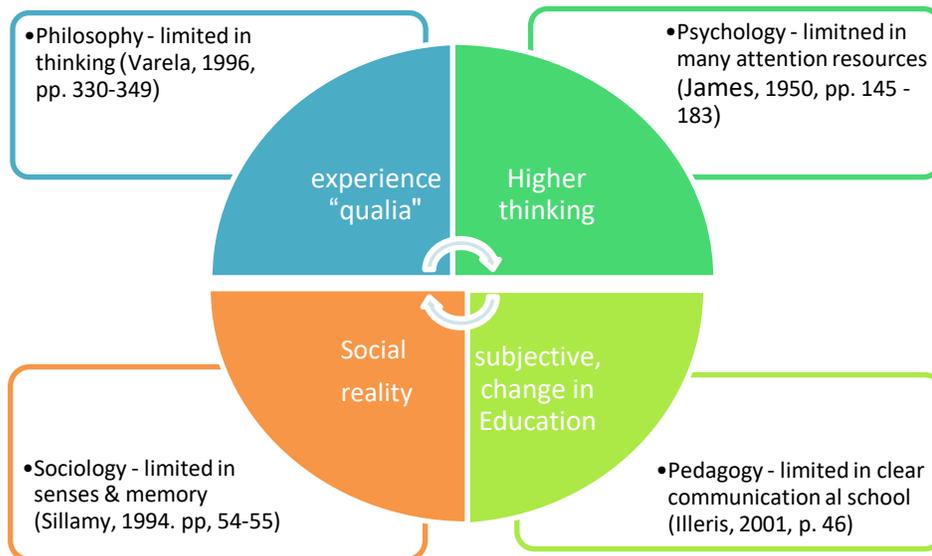
The early associative pedagogy of Johann Friedrich Herbart defined the consciousness through the idea of the dualism of the body and the mind and is based on the association ability to the relationship between feelings and environment. According to this approach, new perceptions and ideas will be saved in the consciousness only if they have a relationship with similar perceptions found in it (Wolman, 1968, pp. 29-46). In contrast to this approach, functional pedagogy saw the awareness to be one entity and maintained that what influences the awareness is the need and personal interest based on the experience that the person acquires in his environment and from which the person creates meaning. Innovative education must be built in an infrastructural, methodical, and coherent manner, out of the awareness of the problems and conscious formulation of solutions (Dewey, 1938, p. 23). Later, critical pedagogy that engaged in alternatives of a different education defined the awareness as based on the relationship between personal experience and social meanings through the dialogue and emphasized its importance as a mechanism for social change (Shor & Freire, 1990, pp. 105-126). The innovative pedagogy that relies on the constructivist structural approach defines the consciousness as an internal process that occurs in the individual through the processing of information and the building of personal meaning and that exists in reciprocal activity with the environment (Glaserfeld, 1998, pp. 23-28).

Current pedagogy defines the awareness as “the correct/right person, the ability to pay attention to personal behavior is what determines the results” (Okoń, 1992). The awareness is an action of mediation of complex functioning in which the person does not respond spontaneously and reflexively with the situation but his response is mediated by the awareness that reshapes the situation. This response is conscious and represents complex behavior that characterizes the person in comparison to animals (Vygotsky, 1978, p. 14). Awareness is a subjective situation of every person as a person, including the teacher. Awareness without a goal are found in the reference to the teacher himself,

others, and facts (Clandinin, 2014, pp. 361-385). This is an internal psychological process in which the learner structures meaning for knowledge, skills, emotions, and social interaction and develops broader understanding and ability to cope with the practical life challenges (Illeris, 2003, p. 227). Therefore, the homeroom teachers need to aspire to a clear and communicational determination of roles in the school environment. The consciousness is expressed in action, in all that pertains to people and events (Illeris, 2011, p. 46). This is an important process that helps a person undergo a change and develop (Johnson, 2005, pp. 103-129).

The following figure presents the analysis of the different interpretations and the broad spectrum of the concept of ‘awareness’.

Figure 2: "Awareness" as A multidisciplinary concept



Source: Varela, 1996, pp. 330-349, James, 1950, pp. 145 -183, Sillamy, 1994. pp, 54-55, Illeris, 2011, p. 46.

The definition of the concept of ‘Awareness’ of the author takes into consideration of the different approaches presented and their characteristics. Consciousness is a basic and internal subjective process that occurs in every person in a situation of awareness and total alertness to what occurs and derives from a personal and social need. This is an instrument that can be acquired and that enables a change in the patterns of the behavior. As the person develops this instrument, his ability of action improves. The main characteristics in the process of the consciousness in the person are the following:

1. Focusing attention on the first information absorbed in the senses.
2. Processing the initial information is a subjective interpretation of the objective reality based on three components concurrently: (1) cognitive – knowledge and skills; (2) emotional – feelings, thoughts, experiences, memories, and emotions, and (3) social – interaction with the environment.
3. Self-controlling through storage in the long-term memory in patterns organized in networks of meaningful concepts related to one another and using tools for the in-depth understanding and actions of response of future experiences.

Accordingly, the consciousness is alertness and internal observation, it is constant attention to what we do, think, and feel. Consciousness is an increase in the person's ability to think, to consider, to understand, and to solve problems. When a person undertakes an action and thinks about the action, he weights alternatives and, in the end, performs the best action. The insight develops and improves through conscious observation, a feeling of protection against the influence of trivial things arises, and the sense of tranquility and calm strengthens. Therefore, the 'consciousness' is an instrument for the improvement of the functioning that enables the person independence, freedom of choice, and self-control. The 'conscious' person can bring up from the unconscious thoughts and ideas that have been repressed and deal with them, interpret things without the distorted limitation of ordered judgment, and to extract the raw material from the interpretations that are influenced by previous attitudes and beliefs. Through the observation of the thoughts as they are formed, the motives, the prejudices, the beliefs, and the other aspects will be clarified and the ability to control the mind will be developed. A 'conscious' person is a person who has experienced a process of the undertaking of responsibility and self-control given also to the influences of the environment. Hence, a person who is not conscious of his knowledge and his actions is in essence kept in the dark. On the basis of the collected literature, a self-definition of the teacher's consciousness has been developed. Illeris (2003.p. 227) used the concept and found that consciousness is a subjective process occurring in the teacher, which influences the way he acts and assimilates information in the workplace, which expresses itself not only in the didactic process but also in the engagement A teacher in the acquisition of knowledge, skills, emotions, social interaction developing the ability to see

and perform educational tasks with tangible effects. They are extremely important because of the changes in the modern world.

2.2 Changes and Challenges in the World Today

The surrounding reality creates a world of vague trends that influence human rights, including those of the teacher. Globalization is a process of the extension of the cultural and economic relationships between countries that led to reciprocal dependence between different societies. This process has lasted already for decades and is related to the end of the cold war, the accelerated of the pace of the inventions and technological developments, communicational development, the technical possibility to overcome the barriers of time and distance, and in essence the transformation of the world into one economic market (Gidnes, 2000, pp. 155-180) in which information, products, people, money, and technology cross national borders rapidly. This phenomenon causes the creation of a broad community that is combined into one market. People around the world are exposed all the time to large quantities of information flow, are updated by the news, by inventions, and by innovative technologies, and thus a 'global village' is created that unites all the countries into one entity, in which the meaning of political borders is steadily decreasing. The rise in the local and global trade agreements, the easy transfer of merchandise, information, and people between countries created regions of free trade, such as the common European market and NAFTA (Hanin, 2007, pp. 60-84). The economic activity transforms from local activity to activity that is primarily global, expressed in the removal of limitations and a policy of cooperation in the trend to build economic power (Goodman & Barak, 2011, pp. 150-175). Intellectual property undergoes intensive processes and is influenced by the technological changes. The strengthening of the protection of intellectual property is controversial, for instance, regarding the sharing of files on the Internet, patents on the human genome, or access of lifesaving drugs at an attainable price (Elkin-Koren, 2004). On the one hand, there is the desire of the inventors to protect their inventions and the incentives that such a protection brings following it, while on the other hand, there are the needs of the public that profits from broader access to knowledge, the outcome of which is the increase in the pace of innovation and low prices that derive from competition (Stiglitz, 2008, pp. 25-44). A knowledge society is

based on the tremendous increase in the creation and dissemination of knowledge that derives from innovation in information technology. Knowledge can be shared, is mobile, and promotes the creation of societies in which there is interaction between human insight and knowledge technology, in favor of areas, such as economy and society. A knowledge society promotes a space of communication between people, the possibility of the creation of knowledge and shared spaces unlimited in the quantity of information that they include, and the representation of digital knowledge that enables interactive learning and multi-channels partnership, and primarily without limitations of place and time (Meyoduser et al., 2010, pp. 1-13).

The processes of globalization began in the first half of the 19th century. However, from the second half of the 20th century there has been acceleration as well as strengthening of the global processes. The main factors that catalyzed and strengthened the processes of globalization are communicational technological developments, scientific development, and economic-political developments. The ‘Third Wave’ theory of Toffler (1987, p. 197) is a futuristic social-economic theory, which presents the developmental process until today in three stages and attempts to project for the continuation of the development in the future. The period of the transition between one ‘wave’ and another entails difficulty and continuous struggles. The three stages are the agricultural revolution, the industrial revolution, and the third wave, which began at the start of the 1980s in the revolution of the personal computer and the use of networks of computer communication. This revolution enables communication between states and continents, and thus cultural, political, and economic relationships were created between countries, groups, and individuals.

Another factor is the scientific progress and development around the world. The intellectual environment becomes more open and attracts more and more talented people into the scientific discourse. The sharing of knowledge and the formation of international research staffs, the increasing volume of data, the accessibility of the use of advanced equipment, the steadily declining importance of the physical position, the end of limitations of work hours, the new research topics, the human challenges – these are brought to the forefront of scientific research. However, there is a risk to the broadening of the gap between the scientific abilities of the developed countries and the less

developed countries, which may lead to the permanence of the prevalent opinions. In addition, the problem of the use of intellectual property, difficulties related to the migration of research partners, and the fact that commercial companies are funding more and more academic research, thus giving them tremendous power over research, should also be noted (Sexton, 2013). Harari (2011) holds that the primary process that motivates history in the past 500 years is the alliance or the integration between modern science, capitalism, and European imperialism. In addition, the development of global science and the spread of scientific research steadily are becoming an inseparable part of the training in sciences; more and more countries are not surrendering the good that develops from science and the training is focused in global terms (Sexton, 2013). The factor of change in thinking is also expressed in the global economic-political situation: the end of the cold war and the warming of the relationships between the superpowers, the United States and the Soviet Union, created conditions suited for economic and cultural cooperation, the collapse of the Soviet Union and the Communist bloc left the United States as the single power, the European market was established, and quotas and restrictions on import and commerce were removed. These changes created international politics between countries, global politics, inequality of power, politics of control and competition between strong national states (McGrew, 1992a, pp. 1-28). The 'third way' is a knowledge-based economic school that holds that to ensure economic success in a certain country in the reality of globalization, it is necessary to combine between politics and economics, namely, to combine between the principles of the free market and governmental intervention. According to this model, capitalism does not have the right to exist without governmental intervention. The governments must assess the value of knowledge as intellectual property of the companies that compete from foreign countries and allow these companies to adjust it to the needs of the governments (Thurow, 1996, pp. 260-298). Yang (1995) examined whether there is a relationship between nationalism and globalization through the car companies of the United States, Japan, and the People's Republic of China, which developed and were adjusted so as to meet the requirements of competitiveness in the global market and integrated into it in the attempt to maintain a national identity. Yang concluded that the competitive strategy influences the governments' ability to arrange national economies and to adopt policy in areas such as

immigration and education. In essence, the relationship between the global and the local is a process of natural creation in which local developments in local society depend on developments in other societies in distant parts of the world that threaten the spiritual and equal world of humanity (McGrew, 1992b, p. 315) while having an impact on the awareness of every human being.

Humanistic education throughout history included different approaches that aspire to the realization of the person and his freedom, the ideal of values of culture, skepticism, and critical thinking, logic and social decency, and civic involvement. In modern discourse, freedom of choice and natural curiosity, self-fulfillment, and cognitive autonomy, personal authenticity, personal identity, and democratic personality have been added. In contrast to traditional education, in humanistic education there is priority to the value of the protection of human dignity (Aloni, 2004, pp. 41-49). Science and technology are built on the desire to achieve one real truth in the shortest possible way. This rigidity, which is at the basis of the sciences, indicates the fact that science and technology do not fit well with freedom and pluralism, or with equality, or with the rest of the humanistic and democratic approaches (Landau, 2010). In a reality in which the media is the most dominant in politics, religion, and commercial advertisement, the teachers have the duty to equip their students with thinking skills and to empower them with cultural, critical, communicational, and political literacy that will act among the students as immunizations against the dangerous thefts of knowledge of the factors of power and shapers of public opinion. Such critical aware of pedagogy, which combines classic idealism with postmodern shrewdness, will restore to the teachers their original humanistic destiny as experts in the “training of the young people for the art of life” (Aloni, 2004, pp. 41-51).

We still do not know what will be the final results of the processes of globalization, but in the professional literature there is rather broad agreement that the opening of the domestic markets around the world and their joining together into a global village includes on the one hand a large number of advantages and on the other hand a large number of difficulties, that everyone is aware of. The influences of the globalization change from time to time and from country to country and depend on its place in space and on the social and economic situation of the country (Bauman, 2002, pp. 1-176). The

accelerated improvement in the channels of media in the era of globalization enables independent business and employees who engage in the field of sales and marketing to work in their homes. Changes in the demand for workers created more fluctuations and less occupational security. The extension of the phenomenon of work migration derives on the one hand from the need and desire of people to improve their quality of life, to search for new possibilities for economic wellbeing and livelihood and on the other hand from the need of the job markets in the developed countries for a cheap and unskilled workforce. Thus, it frequently invites the exploitation of people and the serious harm to their rights, doing it more or less awarely (Ben-Rafael, 2001, pp. 482-526). There is also another phenomenon of work immigrants considered to be more positive, when economic mobility of capital connects to the mobility of a skilled workforce of entrepreneurs, businessmen, and senior workers in global corporations. These processes influence the demographic composition in different countries and the structure of the job market in the country. In the past thirty years there has been an increase of the international economic elite whose members who dominate businesses around the world have disengaged to a certain degree from those of their country, this fact points to new educational needs in the field of mobility and career (Davidi, 2003, pp. 45-75). The interpersonal connectivity led to accelerated development in the scientific culture and technological civilization. Science is the most universal creation of culture and the members of the scientific community work in a global setting and in international aware collaborations in different frameworks (Chen, 2010, p. 180). The frequent technological innovations, the Internet, and the multi-channel media, broadband, stronger computers, multi-channel television, minimization of input devices, cellular phones, and cameras – all these empower the pace of flow of information far beyond the regular person's ability and in a wide range of mediums (Meyoduser et al., 2010, pp. 1-13). In this changing reality, new human needs, required for the young generation, the employment of multiple roles during the professional life, and the importance of the acquisition of suitable learning skills arise. Seeing them more aware by:

1. Skills of communication, cooperation, and language. The learners are required to be communicational types, who have cultural understanding, and the ability to

convey messages according to the intrapersonal and communicational intelligences of Gardner (Vygotsky, 2004, p. 126).

2. Skills of handling information, including the identification of information in an open world, the organization, processing, and presentation of information, high order literacy skills (Martin & Madigan, 2006, p. 80).
3. Skills of high order thinking and self-learning. Skills of inquiry that lead to the creation of new knowledge. The ability to develop the learner's awareness of his lack of knowledge becomes an essential ability (Harpaz, 2000, pp. 38-44).
4. Skills of the use of computerized communication instruments, ethics, and protection online (Martin & Madigan, 2006, p. 49).
5. Personal development. Effective self-presence of the active person, who is connected to his emotions and thoughts, who has awareness of the subjective reality of his existence and culture (Shenar, 2010, p. 31).
6. Skills for life and career. Flexibility and ability to adjust, initiative and self-direction, social and intercultural skills, productivity and responsibility, leadership and accountability (Salpeter, 2003, pp. 17-26).

For the purpose of the adjustment of the teaching to the learners' needs, new ways of learning focus more and more on the learner and on the active learning processes, the flexible structure of the studies, contents adjusted to the social-cultural, economic, and cultural processes of change that invite engagement in actual issues and dilemmas that develop environmental-social consciousness, all this with the integration of technology in the processes of teaching-learning-assessment (Vidislavsky et al., 2011, pp. 1-16). The teacher assumes upon himself new roles of the transformer, mediator, helper, supporter, and evaluator. The teacher is no longer a source of knowledge in the processes of learning and is not the only active factor in the processes of teaching-learning (Shenar, 2010, p. 27). Teaching that encourages problem-based learning presents before the learners open, complex, and authentic problems that are taken from the learners' world (Ertmer et al., 2009, p. 40), which they must solve using a number of alternatives and they must explain their choice of the alternative they proposed. The process of learning obligates self-experience, aware or work in groups and coping with mistakes through trial and error (Chia-Wen & Yi-Chun, 2013, pp. 185-190), asking

questions, involvement, use of thinking skills, creativity, and responsibility for learning (Wright, 2013). Additional teaching, based on learning-based inquiry, seeks to be similar to the way of scientists in the explanation of the world. According to this approach, the learner is given the possibility of attempting the search for a response to a question that arises from a phenomenon that has meaning for him. Learning in this way is generally based on a personal or group-cooperative research project and create new knowledge (Zohar, 2007, pp. 57-84). Teaching based on reflective learning encourages the learners to perform internal assessment during the learning process and after the learning so as to improve their achievements. In the process of the reflection the learner reflects the thoughts and actions that he performed and analyzed them. In essence, such activity is a meta-cognition – thinking about thinking (Schon, 1987, p. 8). Reflective teaching requires openness, responsibility, and integrity and is built on cooperation and dialogue and leads to independence, personal development, and development of professional abilities. In addition, it enables the teacher to improve the quality of education and to emphasize the educational and social values (Pollard, 2002, pp. 3-25). Lifelong learning is an approach that sees in learning a process that occurs on an ongoing basis from our daily interactions with others and with the world around us. From this aspect, lifelong learning is not limited to age or to learning class and it is every learning activity that occurs during life, with the goal of improving knowledge, skills, and competence from a personal, civilian, social, or occupational perspective (Blaschke, 2012, pp. 56-71). Piaget maintained that if there is no learning there is no development and that the best learning is the development of new knowledge and therefore if there is no learning of new knowledge there will not be development (Piaget, 1972, pp. 489-509). Lifelong learning is most essential with the development of technologies. It improves the competitiveness and occupational efficacy of the person and with the organizational learning they constitute vital key components of economic health, since they allow the organizations to meet the competition of the global economy (Holford & Mlezcko, 2013, pp. 25-45). Without focus on lifelong learning, teachers cannot provide opportunities for appropriate learning for their students in a changing reality (Heinrich et al., 2007, pp. 653-663). For the purpose of the preparation of lifelong

learning, it is necessary to develop the ability of self-direction, cooperation, and awareness (Merriam et al., 2007, pp. 275-279).

It is possible to summarize that the new reality is responsible for the positive and negative implications in all areas of life around us. The reduction of the costs of transportation, communication and technological innovation (Kegley & Wittkopf, 2002, pp. 21-44). And yet, process of global domination of the capitalist economy (Stiglitz, 2008, pp. 25-44). The implications of globalization on education are expressed in the 'economization' of the thinking and the educational action. Education is perceived as an economic resource intended for the improvement of competitiveness in the global economy. The success in the international achievement tests (PISA, TIMSS, etc.) becomes the main goal of the educational system; emphasis on the economy-oriented 'core' studies alongside the reinforcement of the national contents at the expense of the humanistic and artistic contents (Hanin, 2007, pp. 36-39) The point is to educate young people so that they can manage themselves and in school and life. To this need is the teacher's awareness and education (Aloni, 2004, pp. 41-49). In addition, globalization brings with it contradictions, such as computer technology and information explosion as opposed to the teacher as a source of knowledge, local curricula as opposed to an international and multicultural reality (Resnick, 2007, pp. 44-47). The modern changes alter from the foundation the learning conditions and personal space of the teachers and naturally influence the teachers' consciousness. In a global reality that obligates the creation of knowledge in a collaborative manner, teacher is required to be an active member in the professional knowledge community in his professional lifestyle, to open his work to peer feedback and processes of instruction, and to be assisted by the global and current professional knowledge resources (Sergiovanni, 1998, pp. 576-595). The access to social knowledge creates a multicultural discourse between people and different groups, a fact that emphasizes the need for the teachers' awareness of difference and cultural context (Shenar, 2010, pp. 17-44). Awareness of issues such as explicit identity and implicit identity, active presence and passive presence, awareness of the learning space, awareness of time and lesson structure, online work routine, and ability to manage time (Shenar, 2010, pp. 17-44; Shor & Freire, 1990, pp. 105-126). Being able to learn and teach in changing reality is a challenge that requires dealing with the complexities of

modern reality and from the multitude of components and interactions and its complexities, this results in information overload, irrelevant knowledge and difficulty in predicting results due to the multiplicity of metrics for performance evaluation. Teachers are required to adapt pedagogy to requirements derived from future trends and preparing learners for life in a different reality, complex that is rapidly changing in future directions that are uncertain, risk management and recovery from failure, courage to experiment, perseverance, determination. Being able to learn and teach towards a bleak and unknown future is a challenge that requires dealing with uncertainty, the descriptions of reality that teachers have come to know are changing rapidly, multiplying and even contradicting each other, this uncertainty creates instability and loose grip on the changing reality (Morgenshtern., Et al., 2019, pp. 199-210). This awareness will help the teachers understand their role and change the traditional classic paradigms that hold them captive so as to make a change and fit in.

2.3 Importance of Science versus the Individual Teachers

Aside from the purposeful value of science, as serving a defined goal, science has a main role in the shaping of human thinking. Science describes and explains reality, and therefore it influences the manner of thinking and leads to change of perceptions of people and systems. The principles of science in the different areas are adopted by the educational system and become the rules that define its perception (Leivovitz, 2008, pp. 4-10). Pedagogy – the theory of education, teaching, and learning – discusses the ways to achieve goals of education in an effective way and it constitutes the core of the educational process in the school. Pedagogy developed concurrently with education (Freire, 1981, pp. 59-76). From time immemorial, pedagogical theories guided the makers of decisions about the appropriate ways of teaching and learning and their considerable importance is expressed among the teachers. Today more and more teachers implement in their teaching work the pedagogical knowledge they acquired in the teacher training, in-service courses, or independent learning (Vidislavsky, 2011, pp. 1-6). However, there is a gap between theory and practice in the teaching work that steadily becomes more challenging as a result of personal and professional factors. Naïve beliefs

and perceptions of teachers may lead them to build unfounded perceptions in teaching and to implement these perceptions in the teaching work (Morris et al., 2012, pp. 825-831).

Korthagen (2010a, pp. 407-423) developed a three-dimensional pedagogical learning model for teachers in physics who engaged in the development of meta-cognitive thinking that awakens awareness of the existing perceptions and assumptions that were not examined in the field of the evaluation of students and found that it helped teachers bring up part of their previous beliefs and exposed to them the lack of awareness of the students' evaluation. Additional researchers developed pedagogical models for improved conscious professionalism (Hoyle, 1975, p. 318; Kincheloe, 2007, pp. 1-60). The 'innovative pedagogy' defines the goals of education and the image of the desired learner in the 21st century and describes the curriculum, the teaching-learning-assessment processes including the organization of time, the organization of learners, and the organization of the staff and learning environment that need to exist in the schools, with the aspiration to ensure through the 'innovative pedagogy' that the required achievements are met and that the processes of teaching-learning are of quality (Vidislavsky et al., 2011, pp. 1-16). However, the lack of consistent considerations in training and the professional skills of the teacher, the excess load placed on the teachers in light of the changing reality, and the complexity of the new requirements that follow are expressed in the rate of the phenomenon of burnout in teaching that derives from ongoing pressure, physical, behavioral, and emotional exhaustion, alongside an apparent decline in the ability to perform teaching work (Guglielmi & Tatrow, 1998, pp. 61-99; Reiter, Talmor, & Fejin, 2005, pp. 10-34).

On this background, the importance of the extension of the existing knowledge regarding the teachers' ability to continue and to contribute positively to the educational system and the need for optimal psychological approaches rises in light of the challenges that were mentioned, which require the educators to combine more skills in their educational engagement (Gu & Day, 2007, pp. 1302-1316). Psychology is a field in the social sciences divided into branches of research, areas and schools of engagement, which studies the behavior of individuals and the mental processes that they undergo, Scientific knowledge that forms in this field may improve and advance the teachers' best

functioning both on the level of the individual and on the level of the organization in the educational system (Seligman, Mernst, Gillham, Reivich, & Linkins, 2009, pp. 293-311). For example, the investigation of the consciousness and theory leads to predictions of behavior for the understanding of the way of action of the mind (Bruner, 2000), the ability to look into the teacher's internality, the way of absorption of stimuli from the environment and internal stimuli, thoughts, emotions, and physical feelings. In addition, the conscious and controlled processes of information processing enable the collection and organization of information in the long-term memory for the improvement of the learning ability (Bargh & Kazdin, 2000, pp. 347-348). In this way, psychological approaches constitute a basis for the interventions and different models for educators and therefore for students and hence their contribution, both on the theoretical level and on the practical level, is very great (Rosso-Netzer & Haimovitz, 2013, pp. 28-55).

Alongside this and in response to changes that occurred in Europe in the 18th and 19th centuries – industrialization, urban expansion, and growth of new political ideas – the perception that the school is primarily a social organization developed. These changes focused the attention on the way in which the educational system operates. Following the acceleration that began in the beginning of the 1960s as a result of the educational-social needs of the shapers of policy, 'educational sociology' was redefined, perceiving education as a social phenomenon with the goal of training the individual for social and cultural integration in society and therefore education as a social system must be researched with the tools of sociology (Pasternak, 2002, pp. 1-12). Sociology is seen as a science that addresses society and the person's social behavior, sees the complex and dynamic social experience among people and comprises their consciousness, researches and attempts to understand the educational institution and its relationships with other social areas, and serves to shape the policy in the educational system so as to improve the field of education (Berger, 1985, pp. 9-32).

According to the functional approach, the school is an effective means for socialization, and success in education in the school will determine for the most part the success in life. The school is a significant environment for the population with diverse needs, students, teachers, parents, and so on, as a social framework may serve as a factor of reinforcement and as a factor of danger. The interpersonal interaction between the

teacher and his environment and between him and the tasks he faces has decisive potential for influence on the professional development (Kaspy, 1995, pp. 66-81). The changing reality in which the relationship between the countries steadily increases strengthens the sociological perception in education because of the need to see the general in the particular and the power of society to shape our lives (Pasternak, 2002, pp. 1-12). Global awareness also arises, since we are aware of the sociological phenomena that occur beyond the borders of the state and the cultural differences between one person and another. The view of the other person helps the teacher analyze himself more objectively (Shenar, 2010, pp. 17-44).

In the past two decades, the human social culture is shaped through technology and creates an environment of discourse of extensive change also in the field of pedagogy and education. The technological means existing today at the teachers' disposal are many and diverse and enable the teacher to increase the logic and interest in the learning topic and with them the increase of the motivation for leaning. Wise use of technology can make the teaching-learning process more dynamic and interesting, enable a solution for the support of the students with different learning needs, and bring about an improvement in the students' scores in all the subjects, the teacher's time management, organization of information, and communication with students and colleagues, as well as re-examination of learning materials and teaching methods, not only from a technological viewpoint but also and primarily from the pedagogical perspective (Grouper, 2010, pp. 1-7). Conversely, there are difficulties in effort and time required for the teachers in the initial acquaintanceship with the technology and the preparation of the lessons that incorporate technology (Zohar, 2011, pp. 95-98). These difficulties cause the absence of a sense of effectiveness and clear direction and emotional exhaustion of teachers, which detrimentally influences their personality, thinking, and work in actuality (Peretz, 2009, pp. 1-22).

Moreover, the use of technology for the most part serves existing pedagogy, while it is supposed to create another pedagogy that is learning from involvement that shifts the responsibility to the learner and obligates him to the performance of independent learning processes, teamwork around the solution of authentic problems in the knowledge field and performance of long-term task based on understanding. Although the teachers know

these principles and the teaching methods derived from them, the learning with the integration of technology is still characterized by traditional methods that make the learning processes in the classes with a high level of heterogeneity difficult (Zinger, 2014, p. 96). The attitude of the teachers towards technology is superficial and traditional. The teaching methods are linear and authoritarian and place the teacher at the center in a way that does not cause the teachers to examine the processes of teaching and learning. In essence, it was found that consciously or unconsciously the perceptions and thinking of teachers have decisive impact on their ways of action in the classroom (Park & Ertmar, 2008, pp. 247-267; Scrimshaw, 2004, pp. 2-45). Some maintain that the teacher's thinking is influenced by the world of science and technology to which he is exposed during his life, training, and experience. Teachers tend to adopt new ways of teaching in the class, if these are commensurate with their personal epistemological perceptions (Clark & Peterson, 1986, pp. 255-296). The new curriculum, which seeks to integrate learning into open information systems through "information and communication technology," is more appropriate for younger teachers than older teachers (Zilbershtrom et al., 2011, p. 47). The findings of research conducted on teachers during a multi-year experience in a technology-rich learning environment show that changes began in their perceptions and following these changes the teachers are characterized by a variety of unique personal outlooks (Vadamany, 2012, p. 167).

In essence, the teacher is the main factor that effects desired changes among the learners and has an active part in the process of the student's social development and socialization. The significant interpersonal relationships of the child with adults who influence his development are created with an educational figure such as the teacher. Therefore, his personality and behavior in the class have decisive importance (Calkins & Bell, 2010, pp. 5-20). The teacher is defined in the literature as a person with formal training for the engagement in teaching and his role is to be responsible for his students' learning as a part of the process of education. For the most part, he teaches in the framework of the class in formal education. The teacher's degree of responsibility for the education of the young generation changes from society to society and from period to period (Vygotsky, 1978, pp. 84-91). The abilities attributed to him are: he transfers information, he inspires curiosity and supplies challenges, he sets clear boundaries, he

encourages motivation, and he uses diverse learning techniques. His abilities includes: finding how to teach his students in a methods suited to the period and way in which they learn, consideration, knowledge of curricula, and the ability to disassemble it according to its goals, familiarity with the student, analysis ability, knowledge of the learning materials and their suitability to the learners, follow up after the learners and their achievements, and ability of control so as to ascertain that the learners do what is required of them (Lamm, 1984, pp. 133-140). The traits required of the teacher are appropriate reference to every student, sensitivity, and empathy.

The teacher's level of professionalism has impact on the students' ability of learning (Calkins & Bell, 2010, pp. 5-20). A good teacher may cause the student to feel that he is wise, since he learns easily with him, while in contrast with a teacher who finds it difficult to teach the student may feel less talented and less intelligence, since he needs long and tiring explanations and consequently his progress is low. In addition, learning is more effective when it comes from enjoyment. Therefore, the ability to transfer the learning contents in a pleasant and interesting manner for the students is important (Yishai-Karin, 2009). However, the characteristics of personality are dynamic and related to the context and alongside the considerable importance of science and technology for the teachers there is also negative influence on the school environment, the teaching work, and the teacher's consciousness that lead to a gap between the desired situation and the existing situation. The school goals, like the organization's goals, are derived from different theoretical approaches that see in a different way the teacher's role. These approaches sometimes are contradictory because of their starting point. Every starting point offered for analysis proposes an angle of analysis that derives from its internal logic (Pasternak, 2002, pp. 1-12). Hence, the scientific technological development brought with it a background of unquiet that characterizes the educational system and ambivalence. The concept of knowledge, the curricula, the school architecture, and the learning assume a different meaning. The school environment does not exploit the potential embodied in theories and in the new skills and technologies that led to their development for the improvement of the teaching and the learning and did not succeed in awakening interest following the students.

In addition, the educational institutions become focuses of the struggle for multicultural education and far-reaching changes in the curricula (Resnick, 2007, pp. 44-47). In a period of the lack of stability, diversity, and heterogeneity in academic, cultural, and socioeconomic terms, teaching and education become a complicated and demanding task for the teacher (Hargreaves & Fink, 2006, p. 105). Researchers found that there is a difficulty among teachers to implement in actuality scientific theories they learned about learning in teaching and to adjust to rapid changes imposed from above because of the lack of awareness of the chances and their lack of partnership in the determination of the objectives (Lamm, 2000, pp. 127-149; Peretz, 2009, pp. 1-22). The teacher who meets the complex educational challenges finds it difficult to adjust to accelerated and endless social, scientific, and technological changes and to change the perception of his role from a source of knowledge to a transfer of knowledge (Kincheloe, 2007, pp. 1-60).

In addition, the extension of the phenomenon of difference and globalization of the economy, politics, technology, and environmental systems in the world changed the knowledge and abilities required of young people to be effective citizens in society. Most teachers of our time were not trained to cope with these phenomena and were not trained to be conscious of the influences of globalization on the lives of the students and communities. The training courses of the teachers do not develop knowledge, life experiences with diverse cultures, and awareness of the difference, equality, and globalization that characterize society as a whole and are required of the teachers in society of our time (Merryfield, 2000, pp. 429-443). In the existing models of teacher training there is a regular gap between the experience and the theoretical learning that indicates the importance of the construction of more integrative training programs (Margolin, 2010; pp. 644-662).

The influences of the development of science and technology on the individual teacher are on the one hand positive and on the other hand negative. However, the borders between all the sciences of the social sciences, the behavioral sciences, and the education sciences are rigid, and therefore they are called multidisciplinary. It is also possible that overlap will be created among them. Education aspires to be an applied multidisciplinary area of knowledge, and therefore it cannot disconnect from facts. Since knowledge is multidisciplinary and draws from different areas of knowledge, in the

setting of positions in education there are considerations from different areas (Pasternak, 2002, pp. 1-12). On this background, the importance of the view of the 'big picture' is prominent (Hanin, 2007, pp. 36-39) in the development of broad pedagogical awareness in the planning of the teachers' teaching.

2.4 The Teachers' Consciousness as a Basis for Professional Performance

The definition of the concept of 'consciousness' by the author is a subjective internal cognitive process that serves as a tool for the improvement of the functioning and includes focusing, processing, and self-controlling. Consciousness is an acquired learning tool that enables the cognitive ability to extract a raw reality from interpretation of attitudes and beliefs and ability to act with effectiveness in society.

Many researchers agree about the importance of consciousness in the processes of thinking in general and its role in the practice of teachers and developed different models for the purpose of the improvement of the quality of the teaching. Hoyle (1975, p. 318) presents a model of extended professionalism that represents the difference between the restricted professionalism in which the teacher acquires knowledge and skills from the experience in an immediate perspective limited in time and place. The teacher is focused in himself in all that pertains to the teaching methods, emphasis on the value of autonomy, the teaching is perceived as intuitive activity and rare reading of the professional literature. In contrast, in improved professionalism, in which the teacher acquires knowledge and skills through the mediation between experience and theory in perspective in a broader social context of education, the teacher uses planned teaching methods through comparison to peers, emphasis on the value of professional cooperation, the teaching is perceived as a rational activity, and ongoing reading of the professional literature (Hoyle, 1975, p. 318). According to the model of extended professionalism, the teacher understands his behavior and interprets and implements the theory, through explanation of knowledge, when the goal is understanding. A teacher with extended professionalism is conscious of the unification of theory and personal pedagogy. The new professionalism of Hoyle is a concept that serves for the description of the improvement of the quality of service through the development of the teacher's consciousness (Hoyle,

2001, p. 146). Critical pedagogy addressed the alternatives of education and maintained that the way to social change, class, social, gender, ethnic, national, and racial stratification to which children are born lies in the development of consciousness (Shor & Freire, 1990, pp. 105-126). According to Freire (1972, pp. 59-75), the educational system represses the graduates since it does not encourage them to ask questions and dispute the existing order. School education stifles the students in a regime of time and space, knowledge that is not relevant to the students' world, labeling tests, prejudices, and so on. As students will preserve the 'deposits' that the teachers made in their consciousness, they become more obedient and submissive and are less capable of critical consciousness, which can develop only through involved activity in the world. Instead of banking education, Freire proposed 'a pedagogy of liberation', the development of political consciousness, and defined three stages for the development of the consciousness.

1. Magical stage. A static situation of the status quo, what was is what will be.
2. Naïve stage. Belief in the ability to solve a problem and understand the relationship between the problem and the general change.
3. Critical stage. Understanding of the personal action and its relationship to the social change (Freire, 1972, pp. 59-75).

Teachers must have consciousness since the way in which the teachers perceive the desired and appropriate behavior of their students relies on their outlook. Hence, the process of the development of the consciousness is parallel for teachers and students and is undertaken through dialogue, processes of empowerment, reading the reality, and self-examination, through the creation of habits for critical thinking. The existence of this process constitutes a mechanism for social change; the change in education is not the construction of alternative educational systems outside the formal systems but the conquest from the inside of these systems by conscious educators who are identified with the pedagogy of liberation (Shor & Freire, 1990, pp. 105-126). Giroux (1983, pp. 147-151) presents a model in which the teacher consciously builds knowledge. He maintains that in this traditional space called the class the teachers have critical responsibility to be conscious that the pedagogy is related necessarily also to the economics, social, and political fields (Giroux, 2007, pp. 1-5). Pedagogy does not address the training but rather the education of people to be reflective and with self-criticism, conscious of their

relations with others, and their attitude with the large world (Giroux, 2011, p. 30). Kincheloe (2007, pp. 1-60) presents a model of post-positive training that shows that teachers build in actuality their practice according to critical knowledge and personal and social consciousness. Schon (1983, p. 61) coined the concept of the reflective teacher, when at the teacher's foundation lies the assumption that the correct pedagogical deed does not derive from a correct theory but from the successful interpretations that the teacher gives to the situations of teaching. The school and class environment are the place where the teacher creates his practical knowledge, primarily from the understanding and explanation of the situation and his ability to recruit the components in his personality, the experience, and the background to find the optimal solution, including the choice of suitable theories (Schon, 1987, p. 107; Zeichner & Tabachnik, 1991, pp. 1-18). Schon (1983, p. 62) describes the reflective teacher in action in that he structures the different situations in his class, while improving, upgrading, and re-examining his private beliefs. These processes constitute a part of the cumulative everyday experience and become a part of the teacher's knowledge basis. Schon holds that the teacher creates knowledge through the integration between theory and action and during the action of the teaching and afterwards through reflection. Reflection undertaken during teaching is called "action in thinking" and after the act of teaching it is "action on thinking" (Calderhead, 1989, pp. 43-51). Fish and Twinn (1997, pp. 104-155) maintain that reflective thinking is methodical thinking, critical and creative, regarding action with the intention to understand the roots and processes. They show in their book that the practice of teachers, such as physicians, is complex and unexpected. Therefore, a curriculum that provides opportunities for learning to use professional discretion and to make decision on the basis of practical insight is required. They developed a reflective guiding model for the development of discretion in professional practice for teachers in education and medicine, consisting of the following four stages:

1. The Factual Strand. Description and chronological reconstruction of facts and processes in practice that constitutes an opportunity for learning.
2. The Retrospective Strand. A look back on patterns of thinking and meanings, motives, failures, successes, use of language in practice. This is the stage of the collection of information.

3. The Sub-Stratum Strand. The investigation of the perceptions, beliefs, values, and judgment embedded in practice. This is the stage of the critical analysis.
4. The Connective Strand. The integration of the three previous stages into practical outcomes and the use in actuality in the future.

These researchers and their predecessors defined reflection as an effective strategy of learning from experience, important human activity in which people reconstruct their experience, think, and look at it (Dewey, 1933, p. 72; Spalding, 1998, pp. 379-382).

According to the model of learning of Illeris (2011, p. 46), the importance of consciousness among teachers is expressed during their action in the school environment as a result of an internal psychological process in which they structure meaning into knowledge, skill, emotions, and social interaction simultaneously and develop a broad understanding and ability to cope with the practical challenges of life. This process includes elements of reflection, transformative and meta-cognitive learning. Illeris describes learning through two processes: (1) personal – perception, memory, and thinking and (2) social – interaction between people. In his opinion, the distinctions between the components that describe the learning are erroneous since the processes occur simultaneously through the individual's social interaction with others and with the environment, even when learning alone, the way in which activity is understood by the individual does not depend only on personal perceptions but there are influences obtained through interaction in the group. However, social learning is not a collective experience of learning since, the individual conducts interaction with the new stimuli in different ways. Therefore, only infrequently will the learning provide identical outcomes for all the participants. This approach is supported by Gergen (1994), who maintains that the traditional psychological terms such as attitudes and perceptions are not found in the heads of individual people but are acquired during conversation and personal functioning is an inseparable part of the system of relations. In essence, the large part of human action develops from dialogue, system of relations, and relationships; as does the language of emotion as a system of terms expressed in relations (Gergen, 1994, pp. 93-143). The starting point of Illeris is that the teachers' awareness undergoes a process of change through what the teacher chooses to give attention. Thus, the focus on internal situations

is an important component, a component that helps the person undergo a change and develop into a person who cares for and cultivates the ‘self’, the other, and the environment. In addition, teachers hold an interaction with an environment that includes other people, a certain culture, technology in a global and rapidly changing world that proposes many possibilities for learning without limitation (Illeris, 2003, p. 227) and in the modernity of the present era we are aware of the high frequency of the process of interaction and the power of social influence (Gergen, 1994, pp. 93-143).

It is possible to summarize that the teachers’ consciousness appears in the professional literature in a number of ways and all the researchers agree about the importance of consciousness for teachers and its critical influence in the practical work of the teacher in the school environment. Some researchers developed models of extended professionalism that are used for a general description for the improvement of the quality of the service but less describe the operative performance for the development of the consciousness. In terms of thinkers in the critical education school, the development of the consciousness occurs in the broad social political reference and the existence of this process constitutes a mechanism for social change through educational means. Critical education in essence expects that the teacher will read the reality critically before he enters into the educational process. Other researchers discussed the teachers’ awareness with reference to reflection, a process of learning from experience with emphasis on rational analysis and on conceptualization and less on the development of awareness of less rational sources for the teacher’s behaviors. The approach of Illeris is social constructivist and links the teachers’ consciousness with environmental interaction. The importance of this approach is the balanced focus on thinking, emotion, and social context, including culture and scientific technological development, which is entailed by the reality in the changing global world.

Therefore, the author broadens the concept of “consciousness” and defines the concept of “teachers’ consciousness” as follows. Teachers’ consciousness is an interdisciplinary concept of the teacher, which characterizes the challenges of the modern world with emphasis on the development of science and technology that influence the teacher. This is an acquired learning tool that enables cognitive ability to extract a raw

reality from the interpretation of attitudes and beliefs and the ability to act effectively and efficiently in the school.

The process of the development of the consciousness through the three stages of FSS:

1. Focusing- 'I know what I am doing.'
2. Subject interpretation into an objective reality that is based on three components: cognitive – knowledge and skills 'I understand why I am doing' emotional – feelings, thoughts, experiences, memories, and emotions – 'what is meaningful for me is not necessarily meaningful for you', and social – interaction with the environment – 'different expression in different cultures'.
3. Self-Controlling through storage of the information in the long-term memory in organized patterns in which networks of significant concepts are related to one another and serve as tools for the profound understanding and actions of response of future experiences – 'I am responsible for my knowledge'.

The author defines the teachers' consciousness as an increase in the teacher's ability to think, consider, understand, and solve problems. The development of the consciousness among teachers entails therefore the development of high order thinking skills, techniques and mental abilities through the use of reflection and meta-cognition, intended to guide the process of thinking, with which the person thinks about thinking, organizes and formulates his thoughts, and holds reciprocal relations with the environment for the purpose of self-control. In essence, the desired teacher is the person who knows and primarily the person who knows to address her knowledge. A conscious teacher is a teacher who has experienced a process of the assumption of responsibility and self-control subject also to the influences of the environment. The increase of the teachers' awareness of the processes of thinking and doing, as a result of the internal and external events around them, may help teachers map their abilities, needs, and expectations, understand the factors of their behavior, plan their course for the future, and define for themselves goals commensurate with the requirements. The awareness grants the teachers an opportunity to take responsibility over the knowledge and thus may change the school experience.

The doctoral dissertation and the defined teacher awareness, is influenced by the Illeris theory that the author has developed

3. The Teacher and the Schools: Expectations, Functions and Tasks

3.1 The School in Israeli Society

The state system in Israel is found under the responsibility of the Ministry of Education and is based on a learning program of twelve years, when at the end the high school matriculation examinations are held in the high school. The schools in Israel are divided according to three main age groups: the elementary school that includes the first to sixth grades, the middle school that includes the seventh to ninth grades, and the high school that includes the tenth to twelfth grades. There are a few elementary schools that also include the seventh and eighth grades. In most schools, the middle school and the high school are found in the same space. The supervision of the Ministry of Education over the schools is performed through professional and comprehensive supervisors according to regions and districts, according to stages of education and stream/sector of education and in special education. Their role is to evaluate the degree of implementation of the policy set by the Ministry of Education, to examine the performances of every educational institution according to the measures determined, to counsel and help the

education institutions identify areas that require improvement, and to facilitate their promotion through the support of processes and guidance. The supervision is also intended to ascertain that the education institutions utilize the public funds appropriately and effectively. In addition, in Israel there is the Compulsory Education Law, which determines that the State is responsible for providing free compulsory education for every child in Israel from age three to age seventeen in a recognized education institution that has the goal of providing an equal opportunity in education for all the children of the state, without discrimination on economic, ethnic, or sectorial backgrounds (Weissblay & Winniger, 2015, pp. 1-66).

The education system in Israel is experiencing far-reaching changes, like the world, with the desire to adjust itself to the pace of changes in Israeli society (Aloni, 1996, pp. 17-33). Until the beginning of the 1990s, the education system had “traditional characteristics”, and since then and until today, innovative characteristics have begun to form (Niderland, Hoffman, & Dror, 2007, pp. 43-87). Since the establishment of the State of Israel, different reforms have been implemented that derived from social, political, and international processes, and their main goal is to bring about an improvement in the students’ achievements and to enable the education system to adjust its role and the teacher’s functioning to the changing reality:

- Free compulsory education (1949) for children aged five to fourteen
- State education (1953) for the creation of a state education framework
- Establishment of middle schools (1968) for the creation of “educational integration” of students from different schools
- Self-management (1992) for the creation of change in the perception of the school responsibility
- Long education day and enrichment studies (1997) to add study hours for greater depth and breadth
- The reform in the teaching of reading (2002) for the improvement of the teaching of reading
- The “differential standard” (2003) for the creation of equality in education and reduction of gaps in budgeting

- “New Horizon” in the elementary and middle schools (2008) and “Courage to Change” in the high schools for the extension of learning spaces, reinforcement of the profession, and continuous professional development of teachers
- National computerization program (2010) for the adjustment of the education system to the 21st century.
- meaningful learning" (2013) to encourage learning based on: value, engagement and relevance
- "5 times 2 "(2013) to increase rate of the excellent students in Mathematics, Science and Technology
- "containment and integration" (2018) to integrate students with diverse abilities and needs into the regular classroom
- "Snapshot" assessment model (2019) - to adapt the assessment to the new graduate figure based on knowledge, skills and values

The implementation of some of the reforms encountered opposition, and even in the preparation of the Ministry of Education for the implementation, there were elements of ambivalence (Vidislavsky, 2012, pp. 1-14). In addition to the different reforms, the education system in Israel is undergoing social-cultural, economic, technological, and curricular changes, so as to adjust the education in Israel to the changing environment. In the social-cultural realm, because of the multicultural nature of the state population and so as to provide an answer to the variety of social-cultural needs, today different types of schools operate, different from one another in the type of supervision and sector division and in the degree of subordination to the state supervision over them.

Official “state” schools are owned by and are under the supervision of the State, their curriculum is determined by the Ministry of Education, and they are intended for children and youths. The state schools are split into five sectors: the Jewish sector, which is divided into the state and state religious sectors, the Arab sector, the Bedouin sector, the Druse sector, and the Circassian sector. “Exempt” institutions are Ultra-Orthodox schools without the recognition of the State. They are required to teach only 55% of the basic curriculum and the supervision is very loose. The “recognized but not official” schools are private schools, and they are not owned by the state but by the local authority

or a private organization. They receive a license and recognition by the Ministry of Education and are funded by it and by the local authority but are only partially supervised; in other words, they are required to teach at least the core program (Harel Ben Shachar, 2012, pp. 1-15). These schools were founded from a trend to establish the perception of the educational institutions as an autonomous social system. The schools have the legitimacy, on the part of the central educational authority, to act to form a unique school identity that suits the community needs. The process of the extension of the autonomy to the schools derives from the perception that in this way the education institutions can grow, develop, and create good mechanisms of adjustment according to the conditions of the changing reality. The autonomy enables the schools to perform a local process, persevering, rapid, and independent for the achievement of the organization's goals. In a fractal education system, the education institution can autonomously deploy systemic functions. It can operate independently in the setting of the curriculum, methods of assessment, methods of teaching and learning, budget management, human resources, infrastructures, and so on, perform a constant process of improvement and change on the basis of aspirations and opportunities that it identifies independently, and create and produce independently different types of collaboration with a variety of factors (Zarviv, 2016, pp. 6-10). The recognized but not official schools offer uniqueness, such as the TALI schools (the Hebrew word is an acronym meaning Unique Learning Program), the democratic schools, the anthroposophical schools, and unique schools for nature and the arts (Harel Ben Shachar, 2012, pp. 1-15). They address social-cultural differences between the students, in their abilities, motivation, and learning style, and they cultivate a variety of teaching methods so as to answer a variety of learning needs (Globeman & Kaspary, 1999, pp. 197-246), to develop in the students higher thinking processes, and to see them as active and involved in the learning (Tishman, Perkins, & Jay, 1996, pp. 197-206).

The multicultural differences that characterize the population in Israel, like many countries in the world, have made the school population more heterogeneous in comparison to the past. Accordingly, the leaders of the State of Israel and the heads of the education system placed the topic of equality and the reduction of the gaps as the top priority, and in recent years there has been an economic change that has led to a

considerable increase in the education budgets in general and in the budget for the student in particular, for the purpose of the more equal division of the resources of the education system among the groups in the population. In the year 2014 there was a differential standard for the student that enables the reinforcement in the weekly hours for the student in all the schools that belonged to the weaker group. Nevertheless, the number of hours per student in Arab education still remained lower than the number of hours per student in Jewish education in the middle school, and the gap between the sectors remained significant (Blass & Shavit, 2017, pp. 6-14).

In addition, the learning classes in Israel are especially crowded, in comparison to most countries of the west. The report of the OECD, published in the year 2014, indicates that in elementary education the average number of students in a classroom in Israel is 27.6, while the average number in the countries of the OECD is far smaller – 22. In the middle schools, the average number of students in the class in Israel is very large – 29.4, versus 23 in the OECD states. Of the 34 countries in the report, only in China, Chili, and Japan is the number of students in a classroom greater than in Israel (Weissblay & Winniger, 2015, p. 12). The issue of the size of the class has not disappeared from the educational agenda for a number of years, according to the approach that in small classes it is possible to adopt individualized teaching methods or teaching in small groups and thus to bring about an improvement in the achievements (Shafir et al., 2016, pp. 168-185). In the year 2014, there was a process of the decrease of the maximum number of students in a classroom, from 40 to 32, taking into account the cultivation index of the school. However, in actuality it was found that in the years prior to the making of the decision on the reduction of this number, the average number of students in a class declined more rapidly than after the decision, and the improvement was directed not necessarily at the weakest populations. In addition, it is not clear whether teachers who teach in small classes indeed utilize the possibilities embodied in these classes and in general the teaching methods suited to them. It is likely that they adopt pedagogy similar to that undertaken in larger classes and thus eliminate the advantage that derives from the class size.

Furthermore, the increase of the percentage of students eligible for the high school matriculation certificate that includes mathematics at the level of five units of

study is one of the main objectives determined by the recent Ministers of Education, who maintained that this is essential to the preservation of the place of Israel at the forefront of global technology and the continuation of its economic growth. For this purpose, hours were added to the teaching of mathematics and standards for teachers in the profession, and the university “bonus” for the students of five units of mathematics was raised to thirty points. In addition, a “safety net” was deployed that ensures that a student who learns mathematics on the level of five units and did not pass the test will be considered as having passed the test at the four point level and will receive an addition of twenty points. The outcomes of the high school matriculation tests in the 2016 academic year showed that these steps yielded the hoped-for results. Alongside this effort, the education system acted to increase the percentage of the learners in vocational-technological education, and since the year 2010 it has increased by 37.4% (Blass & Shavit, 2017, pp. 6-14).

Despite these efforts, Israel is found in the first place among the OECD countries, with especially high gaps between Jews and Arabs and between the rich and the poor, on the basis of socio-economic background. The finding about the great difference in grades in Israel recurs consistently in the research cycles of the PISA (Programme for International Student Assessment) and in other international research works. The education system in Israel has not succeeded until now in dealing with the large gaps between the different population groups (National Authority for Testing and Assessment – RAMA, 2017, p. 112).

In recent years, there has been a change in the schools in Israel also in the technological dimension. The national program of computerization is steadily expanding for the purpose of the adjustment of the education system to the 21st century, and the place of knowledge and contents in the curricula are influenced by technologies of computerization and communication. Today some of the schools manage computerized projects, and there are high schools that work according to e-learning, where the students learn some of the studies on the Internet, through distance learning (Larson & Miller, 2011, pp. 121-123). One of the main goals of the national information and communication program is the change of the teacher’s behavior in the classroom, through the assimilation of innovative pedagogy and skills in the 21st century with the integration

of information and communication technology on the systemic level (Dayan & Magen Nagar, 2012, pp. 88-96).

The curricula are a main topic in the adjustment of the education system to the characteristics of the new era. They emphasize multiculturalism, diversity, contents, and ways of learning, and through them it is possible to prepare the students for this era (Linn & Hsi, 2000, pp. 120-210). The Israeli education system has deliberated for years on the determination of the curricula not only because of the essential difficulties in achieving broad public consensus but also because of the difficulty in determining supra-goals for the education system in the post-modern era that will contribute to the social cohesion in heterogeneous and divided Israeli society that lacks cultural common denominators (Yosifon & Shmeyda, 2006, p. 24). For this purpose, the legal system in Israel required the Ministry of Education to form a core program that would define the main and basic components in the curricula that represent the Israeli identity shared by all the sectors in the population through the teaching of the subjects of mathematics, language, English, and science (Ministry of Education, 2003). In recent years, the Ministry of Education has the goal to promote the reform titled “Meaningful Learning” in all the curricula in the schools based on three principles: value, involvement, and relevance regarding the learned content and its goal is to direct the teachers to encourage the students to engage actively in knowledge pertaining to their world, to identify, to process, to critique, and to create knowledge, to think independently, to express their opinion, to be involved in what is learned, to engage in the values of society and humanity, and to bring about that the learning will have meaning in the learner’s eyes (Weinstock, 2017, pp. 5-45). All this – through the strategies of teaching of the promotion of inquiry learning and cooperative learning, the development of teamwork, the solving of complex problems, and the transfer and implementation of knowledge acquired that may prepare the students better for the complexity and dynamism of our world (Loyens & Rikers, 2011, pp. 361-381). In this framework, there is a trend for change in the broadening of the alternative assessment that also occurs in the processes of learning and not only in the final products – the use of portfolios and rubrics, peer assessment, and self-assessment (Griffiths, 1993, pp. 150-163). The changes that have occurred in recent years were placed as the objectives of the educational system in Israel, with the goal of adjusting the structure of the education

system to the needs of the economy and of providing students with tools for integrating in the life of the economy and society in the future (Blass & Shavit, 2017, pp. 6-14).

However, some maintain that there is no correspondence between the two. Aviram (1999, pp. 47-80) defines the contemporary education system in Israel as an organization with six characteristics: goals, contents, organizational structure, target audience, attitude to the target audience, and methods of action that do not provide an adequate response to the characteristics of the post-modern era in which we live. The institutional structure of the school, the system of beliefs, the concepts, the values, and the inherent techniques are no longer commensurate with the social cultural economic environment in which they operate. In social-cultural terms, the multiplicity of outlooks and their recognition as legitimate by the educational establishment may make it difficult for society to find a shared cultural and social ethos (Sabar Ben-Yehoshua, 1998, pp. 137-164). In addition, contemporary education is marked by a depletion of the human spirit, shallowness, cultural mediocrity and a severe crisis of values, danger to humanistic education, which is based on ideals of freedom, equality, and universal justice, alienation towards caring and lack of morality, surrender of the attempt to educate, and satisfaction with helping the young people to realize their individual goals (Idiolovitz, 1997, pp. 81-91). In technological terms, the expectation of the clients of the education system, the students and their parents, is that the current technology and its products will stand at the center of the educational activity, both as learning aids and as a part of the inculcation of skills required today (Pape, 2009). Most teachers use technology as an addition to the existing teaching-learning, but they do not implement a meaningful change from the traditional teaching to advanced digital teaching-learning (Magen-Nagar & Inbal-Shamir, 2014, pp. 78-110). The overall reference to education that does not differentiate between its parts misses the goal, and it is largely empty of content in educational, social, and even economic terms (Blass & Shavit, 2017, pp. 6-14).

In addition, in the schools today there are no conditions for meaningful learning. The implementation of teaching and learning in this way requires changes of an innovative character in the present curriculum, in the teaching methods, and in the assignments that the students receive. An intellectual school culture, which is open and supportive, is needed, and a great change in the teacher's role is required – the transfer

from the “giver” to the “guide”. These changes are a real revolution in the teacher’s role, and they are not easy for teachers (Harpaz, 2014, pp. 40-45). The current schools are not capable of assimilating the innovations of the present, and therefore they cannot adapt themselves to the world of tomorrow (Beck, 2013, p. 18). The schools in Israel are still subordinate totally to the two supreme principles of the old organizational structure: an authoritarian hierarchical structure and the unity of time and place. The school that is based on the old organizational structure cannot prepare the students for the new reality, which is characterized by completely different organizational structures.

The concept of organizational structure and the group of people of Aviram (1999, pp. 47-80), which expresses the school environment, is combined with the concept of K.Illeris (2003. p. 227), which argues that learning is a social process even when the individual learns alone. At the same time, the social interaction of the individual with others and his environment and the internal psychological process of processing and acquiring new knowledge connected with prior knowledge, this process is significant for the development of broad awareness and ability to cope with the challenges of modern life.

3.2 The School Environment and Its Impact on the Teacher’s Functioning

The school environment is composed of the environment inside of the school, which includes regularities, such as the physical and organizational structure of the school, the division of time and space, the division of the students into classes, the division of knowledge for the subjects, the structure of the lesson, the structure of the tests, the structure of the ceremonies, and so on (Sarason, 1996, pp. 95-119), and the environment outside of the school, which includes the parents, the community, and the public at large (Beck, 2013, p. 26). The internal and external components of the environment create together the school climate, a community, social, and cultural “reality” that is expressed in language and interaction, conversation on opinions, emotions, and needs that expressed the school educational approach and the norms that largely dictate the organization of the knowledge and the pattern of teaching of the teacher (Bruner, 2000, pp. 15-55).

The intra-school environment has a considerable impact on the teacher's functions in the school. The physical structure and the components of school education – the organization of the classes and the lessons, the use of time, the measurement of achievements, and the implementation of the students – link between the school and its environment and place the responsibility on the teachers, with the influence on the awareness and the teacher's professional knowledge that are expressed in the way in which the teachers perceive the teaching, the teacher's role, the learner's place, the learning process, and the learning environment and the implications on their educational activity (Fiske, 1991, p. 14). The environment that includes the physical, social, and symbolic sources outside of the teacher constitutes a part of the teacher's thinking not only as a source of input and a target for output but as a means for the thinking and learning of awareness through the use of physical resources supporting thinking, sources of information, reciprocal social activity, and social system of symbols, such as speaking, writing, scientific symbols, diagrams, conceptual system, and learning products found in the environment itself. In the regular contemporary school in its traditional structure, the teachers and the students find it difficult to be helped in the physical, digital, and social environment for the purpose of the learning of awareness and the empowerment of the learning (Perkins, 1998, p. 142).

The intra-school environment that today exists in Israel is based on the historical structure. The basic ideas at the foundation of the pedagogy prevalent today were determined many decades ago, and they are based on the educational approaches, the educational goals, and the technological instruments that were dominant in the period in which they formed. These ideas shaped the organizational environment in which the school exists: The Ministry of Education, the structure of the supervision, the workers' organizations, and the structure of the teacher's employment. These structures extend the life beyond the validity of the ideas at their foundation, and today they force the schools to adhere to certain pedagogical approaches that are not necessarily desired for them (Banit, 2017). The school, which was established during the Industrial Revolution, in the second half of the 19th century, has not essentially changed until today despite the reforms. The school of today is similar to the school of yesterday in the physical, organizational, and conceptual structure. Both are built on the same elements: frontal

instruction, passive learning, disengaged curriculum, classifying examinations, and school routines. The institutional structure of the school and the values embodied in it suited the social, cultural, and economic environment of yesterday and is not commensurate with the contemporary environment (Harpaz, 2012, pp. 29-38). At the basis of the structure of the school today is one teacher, who teaches at a certain point in time, in a certain room, in the school building, a class of 25-40 students, one topic in one way; despite the discussion of the need for differentiation in the learning, there is a lack of flexibility and organization in space and in time. The way of planning of the teaching, which is built on a schedule in the school, makes it very difficult to be implemented in actuality, and it occurs very partially, if at all. Infrequently the teacher provides a suitable answer to students who need learning at a different pace, in a different method, or with a different teacher. Because of the crowdedness and load of the study day, there is barely any engagement in the students' preferences or areas of interest and engagement in the students' strengths and personal characteristics, which beyond their ability to learn theoretical content and to be examined (Banit, 2017).

Perkins call the existing school environment a “cold cognitive economy” since it is low energy and therefore does not drive complex thinking or the acquisition of knowledge and skills. The reasons are high effort while risking learning failure and risking a decline in the social status, lack of relevance to the real life, the teachers and the texts are the single source of information, the desire for good grades causes a decline in the requirements and lower level learning, there is a greater multiplicity of goals that the teachers are supposed to meet, and therefore the teachers divide their resources among the goals so that every goal is accorded symbolic and negligible investment, the drive to “cover” the scholastic material lowers the level of the learning (Perkins, 1998, pp. 167-170).

In recent years, the Ministry of Education has initiated two pilots to promote change: one addresses the re-design of the diverse learning spaces in the existing schools, while the other addresses the establishment of new schools that contain innovative learning spaces (Ministry of Education, 2014), from the perception that the use of a variety of learning spaces reflects the idea that learning occurs in every place and at every time and by every person and the system of relationships between people, processes, and

contents in the space reflect the reality of life, dilemmas, problems, ideas, principles, and concepts (Levin, 1998, pp. 149-183). The learning spaces enable flexibility and organization in space and in time and a non-uniform schedule. They enable the organization of the learners in different learning groups, dialogue, and flexibility in the manners of teaching and in the learned contents. They offer richness and diversification of the learning activities and the learning contents, teaching through multiple intelligences. They develop responsibility for learning and social behaviors of cooperation and enable the teacher to function as a guide for her students and to assess the learner according to her achievements and unique abilities (Leivovitz, 2013). According to this perception, the contemporary school must allow the teachers learning spaces and peer learning in the school, which influence the learning culture and teacher's awareness so that they will increase the teacher's personal, professional, team, and organizational effectiveness (Patton et al, 2015, pp. 26-42). Educators who will learn the language of design can use appropriately existing spaces and create ideal spaces for the promotion of important goals such as belonging, empowerment of students' abilities, increase of the ability to hold a discussion, meaningful learning among people, and promotion of processes of teaching-learning suited to the 21st century (Leivovitz, 2013).

The closed structure of the school existing today, which is defined and delineated in a geographic space and is built from independent units of classes and grades, influences the closed nature of the school against the environment outside of the school (Talias, 2011, pp. 1-21). However, the environment outside of the school is steadily receiving the increasing reference in recent years in the field of educational research, in contrast to the tendency in the past to see the school as a closed system. The cooperation of the school with the environment outside of the school describes the constellation of the relationships between two or more factors undertaken on the basis of choice and awareness of the duration of time, through investment, commitment, involvement, and reciprocal influence with the goal of improving opportunities for learning and teaching through the use of environmental resources (Talias, 2009, pp. 26-33). The relationship with the environment outside of the school derives from the conditions under which the school operates as a "new localism" in a changing environment and which are expressed in competing regions of registration, budgeting of public systems and independent and

private factors for rich and quality education, increase in education and involvement of the parents in resources and demand for reporting, and engagement in the measurement and evaluation that exposed the schools to public criticism (Crowson et al., 2010, pp. 300-336).

Today there is steadily forming agreement that the question of the school's success depends on its ability to conduct productive relationships with its environment, and good communication between the school and the community is important to refresh the curricula, to encourage active value-based environmental activity, and to improve the school climate, with the adaptation to the changing environment (Epstein, 1996, pp. 10-15). The change of perception regarding the work with the environment entails learning for the teachers' awareness of the place of factors of the environment and their increasing influence on the school activity (Talias, 2011, pp. 1-21), Conscious learning has the character of an individual phenomenon that is always social (Illeris, 2003 .p. 227). The teacher's awareness is composed and realized in a school environment that constitutes a "reality" shared by the social cultural community (Bruner, 2000, pp. 15-55). Alongside this, there is still weakness in all that is related to the guiding instruments for work of schools with the community, and the response of the schools is slow and limited. There is a wide variety of environmental theories of management that represent the combination of personal vision, circumstances, and needs. However, there is no methodical and guiding perception of the entirety of the perception of the principal's role through the development of the school's relationships with its environment, and today as well there are more than a few schools in which there is the "four walls approach", an approach that sees the school as an institution that is managed in its boundaries (Crowson et al., 2010, pp. 300-336).

In addition, the school in Israel is exposed to the parents and the community that encounters the teachers and the teachers are exposed to the parents' language, ability, and statements. The exposure of the schools to the public in Israel indicates a picture that is not positive in most cases. Some of the low public esteem that the teachers have acquired over the years indicates the fact that most of the teachers still believe that teaching is "giving" and therefore they need external means of discipline, indicating above all their perception of their students as "not knowing", as "not capable", as "disruptive", as

“wild”, and as sabotaging the scholastic process (Beck, 2013, p 26). In addition, today in Israel there is a gap between what is expected of the school, in terms of the student’s training as a future graduate, and the reality. This gap causes the school’s functioning to be perceived as inadequate, the curricula are perceived as unsuitable and not current, and the teacher’s professional knowledge is perceived as weaker than in the past (Brandes & Strauss, 2013, pp. 26-34).

The components of the environment inside and outside of the school create a community social “reality” that is expressed in the school language in the interaction of opinions, emotions, and needs (Bruner, 2000, pp. 15-55). The school language speaks the school educational activity, it arises from each one of the school traits and statements, it is the place to which all its actions are directed.

The school language is what connects all the threads together into the unique school fabric. The language is expressed in teaching, in learning, in discussions, in activity and action, in classroom learning, and in learning outside of the classroom and outside of the school, and it constitutes a main axis in the school environment. The importance of the school language lies in the definition of the school culture, primarily in the postmodern era in which we live that is characterized by an absence of clear definitions and the erosion of authority, by relativity and the multiplicity of voices, by sharp and rapid changes in all areas of life, and by the explosion of knowledge that doubles itself every three years. This situation is directly related to the change of the teacher’s role (Cohen Le Ganc, 2011, pp. 1-4). The language, which represents the school culture, is translated through processes and organizational routines that arrange the behaviors required for the achievement of the organization’s goals. Teachers translate the school culture into teaching practices, and these practices strengthen the school culture. Teamwork and cooperation among the teachers, cohesion, and trust forge an effective routine that creates a shared language and enables the transmission of information and the making of decisions, encourages involvement, and promotes change, teaching methods, and the assimilation of innovations (Schechter & Feldman, 2010, pp. 490-516).

Cohen Le Ganc (2011, pp. 1-4) presents an example of the “Mevo’ot HaNegev” experimental school, which defined its school language as “orientation on learning” through:

1. The different allocation of the lesson time – transition from the pedagogy of giving to the pedagogy of the building of knowledge by the learner under the teacher’s guidance.
2. Interdisciplinary learning – based on the organization of “subjects” in learning clusters related to regularities and organization in the school. The teacher teaches a small number of students for a longer period of time and can develop personal interaction with each and every student and can bring about the expression of the student’s different intelligences.
3. Performances of understanding – diverse tasks through interactive formative assessment.
4. Meta-cognition and reflection.
5. Technological infrastructure – computerized environments.

Alongside these, the school language prevalent today is expressed in many expressions that give away the common images of awareness, thinking, knowledge, learning, and teaching of teachers. Examples of images taken from the world of the static environment of the school that address the human awareness as an object without addressing the entailed processes include: “If you do not listen, you will not know”, “This child has an empty head”, “He catches on quickly”, “She does not get anything”, “It is necessary to cover/finish the material”, “This class does not get enough mathematics”, “In this classroom it is necessary to give more English” (Harpaz, 1999, pp. 1-37). The school “reality” is also expressed in interaction, opinions, emotions, and needs (Bruner, 2000, pp. 15-55). The teachers of today are perceived as very different from the teachers of yesterday; they are more educated, more involved, and address the students differently. In the school of today the teachers of today attempt to get close to the students, to satisfy them, both from an educational approach according to which the child is at the center and because there is no choice. This situation led to a revolution in the power relations in the classroom, when today many teachers are controlled by anxiety and some of them are an object of abuse on the part of their students. On the one hand, the teachers are supposed to “maintain control over the class”, while on the other hand, the world of today, in contrast to that of yesterday, belongs to young people “who don’t give a damn” (Harpaz, 2012, pp. 29-38).

The review of the literature indicates a number of central insights. The environment inside and outside of the school largely dictates the teacher's organization of the personal and professional knowledge and pattern of teaching. The teacher builds his awareness actively as a result of the interaction of inner knowledge and the reality outside of it, the environment inside and outside of the school. The teacher interprets the reality and builds upon it actively his professional knowledge, and his perception of the outside environment is unique to him and to his interpretation. Hence, the teacher's professional knowledge and awareness are not a neutral and final product but rather are contextual and dynamic, placed in the environmental context, and therefore relative and changing.

The educational approaches and different reforms that have developed in recent years have provided theoretical and research anchors that prove that the shaping of the learning environments and the creation of a relationship with the environment outside of the school are directly related to the betterment of the teaching methods and the cultivation of an optimal educational climate. The distinguished factors influence the personal and professional knowledge and teacher's witness. Today we can see in these kinds of teacher's knowledge the presence of traditional components that are perceived in Israeli educational institutions. The traditional physical and organizational characteristics that exist in the decisive majority of the schools in Israel make it difficult for the teachers to be helped in the physical, digital, and social environment and decisively influence the teacher's professional knowledge and awareness, which are expressed in the teacher's emotional and cognitive functioning, in the interaction with the social, cultural, and material environment.

The awareness and the understanding of the importance of the "place" in which the learning occurs are not cast in doubt. Accordingly, great attention is accorded to the topic of the school environment in the broadening of the teachers' professional knowledge and environmental awareness in the course of the training and in the processes of teacher professional development, so as to adjust the teaching work to the changing environment.

The present considerations study will examine the components of the environment and the unique characteristics of the school and their influences on the awareness and professional knowledge of teachers in Israel.

3.3 Traditional and Contemporary Education – Featured Considerations

For about one hundred years, education has been an integral part of the social services that countries grant to their citizens and is perceived as a critical variable for the development of a modern economy and social values. Over the years, the education system was forced to cope with many social-cultural, economic, and technological changes, which were expressed in the elements of education, the perception of the teaching and education, the teacher's role, the ways of teaching, the learning spaces, and the figure of the graduate.

The elements of traditional education, as presented by Dewey (1938), as a revolution against “old education” are: (1) the transmission of knowledge and skills that have formed in the past, (2) the transfer of standards and rules of behavior that formed in the past, and (3) the uniqueness of the school institution. These three traits determine the goals of education: (1) the training of young people to assume responsibility and to succeed in life, (2) teaching methods, (3) transmission of knowledge, (4) skills and rules of behavior and discipline in the school, (5) obedience to the teachers who transmit the tradition.

In old education there is coercion from above and external discipline, learning from texts, acquisition of skills without context through practice, preparation for the distant future, static materials and goals without familiarity with the changing world (Dewey, 1938). Traditional education emphasized the outside conditions, the teacher, the equipment, and all that represents the experience of the adults and minimized the internal conditions, tendencies, and immediate emotions of the young people (Lamm, 1973, pp. 9-49). The external conditions are those under the educator's control. According to this perception the educated person is a cultural person and a “good person” (Aloni, 2005, pp. 73-83).

The teacher, according to this approach, is required to be an intellectual, to have broad education and to function as a legitimate and autonomous agent of culture and knowledge (Guber, 1999, pp. 121-142). The “learned teacher”, who is required to serve as an example and a model for a good and cultured person, must ensure that the students

identify with her and with the values of the culture (Zeichner, 1994, pp. 9-19). The assumption of the approach is that every intellectual with knowledge in the content field can also instruct (Darling-Hammond, 1987, pp. 354-358). The goal of education, according to the traditional approach, is to educate the young people for patterns of thinking and behavior accepted in the society in which they are found. The knowledge of the contents is interpreted as the ability to reconstruct what is learned in a precise manner, through imitation. In the Executive Approach, the teacher instills in the students the knowledge and skills useful for the future to obtain outputs and products needed for higher education and social functioning (Fenstermacher & Soltis, 1986, pp. 21-96). The role of the school and the teacher is to convey to the students the values of society. The educational goal can be described precisely, and therefore it is possible to list what the educator needs to achieve and what the student needs to do. The teacher is the agent through which the knowledge and skills are given, and he enforces the rules of behavior (Peters, 1970, pp. 5-20). She must use the best ways for the transfer of the contents, understand the factors of the personality that may interfere with the student in the learning, and neutralize them so as to enable the maximum learning. The teacher is not required to exert judgment about the type of knowledge she will teach; rather this is dictated to her by outside factors, she is passive, and she can change very slightly her contents (Zeichner, 1994, pp. 9-19). This issue emphasizes the fact that the personal and the substantive knowledge resulting from the teacher's education, which is passive, encyclopedic, causes that traditional education in the Israeli schools is still carried out.

The progressive approach that developed at the start of the 20th century reflected relatively new educational arrangements based on the humanist-social and cognitive-developmental approaches (Blum, 1980, pp. 18-33; Dewey, 1960, pp. 3-21; Gardner, 1993, pp. 320-340; Perkins, 1998, pp. 9-11; Piaget, 1972, pp. 11-14; Rogers, 1973, pp. 151-158). The common denominator of these thinkers is the criticism they leveled against conservative education. They focused on the development of humanist teaching methods and learning methods that include constructivism, multiple intelligences, and the development of higher order thinking. These researchers recommended teaching meaningful learning, development of high order thinking skills through inquiry, cooperativeness, and work in groups, awareness, and criticism of the environment. The

different approaches were formed with the goal of providing an adequate educational response to the students and enabling them to reach higher scholastic achievements and thus the advancement of society at large would also be achieved. Optimistic approaches that seek to correct and improve the education system on a rational-humanist basis were the basis for his development (Globeman & Kaspy, 1999, pp. 197-246).

While progressive pedagogy focused primarily on the placement of the student at the center of the educational process, in the 1960s there developed a radical educational approach, “critical pedagogy”, which became widespread primarily in poor countries with economic, social, and educational oppression but in the past 25 years is also implemented in North America and in Europe – and even in Israel. According to this approach, there is a relationship between education, culture, and society, and these influence the school community and the society in which the education system operates. The theory and practice of the teachers is entwined in the educational action, and the teachers are supposed to be critical of the influences of culture and society on their actions (Freire, 1981, pp. 57-113).

The criticism of teaching in this approach is the fear that students will not learn to handle the internal contradictions of the knowledge structures, and their understanding will be reduced to the borders of the personal experience creating his knowledge. In addition, change of the social order affects the teacher's awareness and knowledge, cannot be dependent on education alone but rather demands change in the social institutions and relations. However, teaching in this approach can influence the work and thinking of educators and students who may bring about social and cultural change (Giroux, 1993. pp. 452-496). In the 1980s, reports called "Tomorrow's Teachers and Teachers for the 21st Century" were published, defining a series of expectations from the worthy teacher according to the new perception: the teacher's commitment to the teaching profession, expertise in the content field, ethical commitment, practical teaching ability, reference to the difference among the learners, ability to choose the appropriate content for the learners, through adjustment to the environment, time, place, and learners, ability of assessment, responsibility and commitment to professional development, problem solving ability, and judgment ability (Holmes Group, 1986. pp. 5-87). The report challenged the assumption that every person who knows the field of content can also

teach it, as the proponents of the traditional ideology maintained (Darling-Hammond, 1987. pp. 354-358).

Accordingly, the professional knowledge on which the substantive, objective, critical and creative thinking is composed must be taken into account. This knowledge involves creating different solutions for tasks and situations in teaching and even beyond the school.

Some researchers maintain that the separation between the eras does not reflect the reality. In their opinion, the postmodern era in which we live is the chronological continuation of the modern era, in which technological, social, and cultural processes developed (Zuckerman, 1996, pp. 98-201; Smart, 1990, pp. 14-30). However, most researchers hold that the postmodern era contradicts the philosophical and theoretical assumptions of the preceding era. The difference between the two eras is essential and also has considerable impact on the education system (Giroux, 1993, pp. 452-496; Lamm, 2002, pp. 93-109; Lemert, 1997. pp. 2-185). The traits that characterize the new era are openness and skepticism, free thinking process to examine everything, and cultural, value-oriented, and cultural pluralism, elimination of hierarchies, diversity and disagreement, non-rationalism, chaos, virtual representations, and symbols (Gorvitz, 1999, pp. 17-55). According to the principles of postmodern education, learning occurs in every place and in all areas of life, information is for the most part accessible and free, there is striving for invention ability and personal accommodation of the learning experience, and the boundaries between the home and society and the school are steadily becoming blurred. Changes in the 21st century and their implications are perceived as capital and not as an obstacle, there is minimization of the reconstruction of what is learned, and there is the need for non-routine skills of analysis, filtering and merging of information, complex thinking, ability to generalize and transmit information. In addition, there are use of communication instruments, access to digital programs, personally tailored learning, progress at an individual pace and level, high quality digital content, and qualitative teaching (Bush & Wise, 2010). The teacher must be capable of helping the student evaluate himself and must guide him to produce lessons to improve his abilities. The teacher is supposed to change the learning methods, focus on the change of

the way in which the student understands concepts and processes for the diversification of his work methods, and enable the students to perform challenging tasks and to experience teamwork (Ben Zadok, Nachmais, & Mintz, 2006, pp. 1-10). The extensive engagement in information in the 20th and 21st century that occurred because of the computerization and communication revolution and the technological developments in this field became a main component in the engagement of people in the Western world.

In the review of the literature about the skills of the 21st century, Melamed and Salant note clusters of thinking skills required for optimal functioning in the 21st century, including creative and critical thinking, problem solving, and decision making, as well as processes of information-oriented thinking that include a wide range of high order thinking skills, such as the collection and organization of information, the assessment of information, the processing of information, and the presentation of information in appropriate ways. The aforementioned types of information should be included in the resources of the teacher's professional knowledge, which he uses more or less consciously. Therefore, there is a need for valuable criticism and constructing the meanings of various narratives appearing in postmodernism that has permeated the lifestyle and work of the teacher (Melamed & Salant, 2010, pp. 30-33). Researchers like Melamed & Salant, maintains that the attempts to implement the fundamental ideas of the postmodern era in the education system may create contradictions in the determination of the supra-objectives and the pedagogical methods to achieve them. Some propose to integrate between the modern perceptions and the perceptions of the postmodern era, because the two eras offer a stable infrastructure for the development of pedagogical practice and the extension of the boundary of the theory of education (Doll, 1999, pp. 9-17; Giroux, 1993. pp. 452-496).

Innovative learning is based on more restricted learning contents than is traditional learning. Nevertheless, educational research shows that students who learn in an innovative manner achieve at least the same level of achievements in standard tests and even higher achievements in the same tests taken by members of their age group who studied according to traditional pedagogies. Moreover, these students develop diverse skills of learning, including skills of thinking, problem solving, self-regulation, and teamwork, to a greater extent than those their age who learned according to non-

investigative methods (Geier et al., 2008, pp. 922–939). The pedagogy of innovative learning is based more aware on “learning rich in thinking and understanding” which inculcates in the students more qualitative and in-depth knowledge and also develops for them more tools for the acquisition of new knowledge, in comparison to students who learn in the traditional method (Zohar, 2013, pp. 163-166). Meaningful learning is learning in all the dimensions, since it is based on meaningful experience, including content, incentive, and interaction (Illeris, 2007. pp. 22-49).

When teachers “think” that to learn is to sit quietly and listen, that to teach is to say or to lecture, that knowledge is similar to an object that can be conveyed from one person to another without anybody lacking it and that being a good student is to be a person who knows what is learned in school that guides him to behave socially and cognitively, they act according to the cognitive perception that is based on traditional education (Harpaz, 2012, pp. 29-38). In this way he acquires encyclopedic knowledge. Therefore, it should be recalled here that the “teacher’s awareness” is a subjective process that is expressed in the behavior and actions that the teachers do, awareness of innovative teaching, development and assimilation of an innovative teaching culture in the school may change the culture of the school organization. In most schools there is innovative activity in separate “islands” in the curricula in the different areas of knowledge. The full assimilation of the innovative teaching culture in the school will lead to the planning of comprehensive school activity that is integrated in all the subjects of study and at all levels of the study classes and thus will promote teaching and multidisciplinary integrative thinking of the teachers and creation of a shared language (Rosenfeld, 2016, pp. 24-32).

In the past one hundred years, on the continuum there developed two contradicting outlooks in education. On the one edge of the continuum, the traditional approach to knowledge, teacher awareness and the curriculum sees him as a unified center, uniform for all the students, and intended to achieve a uniform standard on the test. In this sense, the teacher uses the textbook as a source of knowledge and values while the students absorb the content passively. On the other edge of the continuum, the postmodern approach includes the combination of modern educational ideologies that see the child at the center and the curriculum adjusted to every student, teacher, actively and

professionally the building of knowledge and processes of discourse, inquiry, collaboration, cultivation of learning skills, criticism, social sensitivity, planning ability, and so on. This approach developed following the criticism of conservative education and emphasizes the influences that combine between the education system and society, so as to adjust the education system to the students' needs in a changing environment. The differences between the traditional approach and modern approaches are in the definition of the basic components in education, also knowledge and awareness of the teacher that affect educational goals, the curriculum, the role and place of the teachers and the students in the processes of teaching, learning, and assessment, the teaching methods, the learning environment, and the teachers' pedagogical perceptions. Neither the traditional approach nor the modern approach is fully realized in the schools; it is possible to see today in the education system traditional teaching characteristics alongside the modern ones that are implemented in the teacher's current educational practice. Recognition of the two elements of pedagogical and encyclopedic knowledge, as well as that of professional, pedagogical and modern based on various types of information, professional experience and enriched awareness by the teacher. All these factors stimulate the active actions of the teacher, who wants to adapt to the current changing conditions.

3.4 Awareness of Teacher Education and the Use of Professional Knowledge in the Schools

Professional development is a process in which the teacher succeeds in changing over the years as a result of personal aspects, aspects that pertain to the teaching work, and aspects that pertain to her involvement and participation in different formal learning frameworks that give her insights and conceptualizations for her work (Ministry of Education, 2010, p. 5). The quality of the teaching is not an innate quality but is acquired over the course of many years of learning and professional development. Therefore, every teacher needs to examine her potential in all the innovative strategies so as to change and improve her teaching ability according to the changes occurring in the education system (Parimala Fathima et al., 2014, pp 27-32). The understanding of the nature of the training of the teachers required in the future is essential, whether the training occurs in the university or as a school activity. The need is to plan the training of

teachers that places as top priority the needs of teaching that correspond with the future needs of both the individual and larger society and is relevant to the learning characteristics of the following generations in the schools (Eraut, 1994, pp. 221-242).

Training and quality professional development that incorporates mentoring, observation of the peers, and analysis of their practices on the basis of data with awareness of the learning processes is the main factor for the improvement of the quality of the instruction (Bill & Melinda Gates Foundation, 2014, pp. 3-16). The understanding of the complexity of the professional knowledge and the fact that it is subject to the examination of both professionals and clients obligate training and professional development, through the cultivation of the awareness of personal knowledge and its uses and with the re-examination of the obvious assumptions innate in it. The concept of accountability, which is required in the professional's actions, is one of the main characteristics in the definition of the profession and professionalism, and it expresses the reference to the client's needs and responsibility for the processes that are performed on his issue and for their outcomes, commitment to quality and ethical and moral sensitivity, ability of self-control and periodic review of the effectiveness of action, the development of self-awareness of the strong points and weak points in the functioning, development of personal expertise and commitment to the examination of the contribution of the profession to broader society (Avdor, 2003, pp. 165-209). The development of the teacher's awareness of the need to change the behavioral teaching methods for constructive and constructionist learning methods (Yehieli, 2008, pp. 40-44) and to change the summative behavioral methods of evaluation for alternative methods that emphasize more formative assessment (Birenboim, 2007, pp. 40-46), integration of computerization and communication in all aspects in the process of teaching and learning (Porkosh-Baruch et al., 2010, pp. 229-232; Surry et al., 2003), development of postmodern leadership skills (Wilson, Shulman, & Richart, 1987. pp. 104-124), and transition from a disciplinary curriculum to an interdisciplinary curriculum (Doll, 1993, p. 252).

The comparison between professional development and the field of training of teachers in Israel displays differences in the reference and quality required over the course of years. The training of teachers is provided only in recognized select academic

institutions, by a staff that is largely composed of doctoral degree holders. There is a crystallized outline that defines what is needed in every field of knowledge, alongside academic freedom of institutions to create in it. In contrast, the teachers of teachers in the professional development can come from almost every field, and the threshold condition is the master degree. There is a large number of binding outlines, so that everything related to teaching and learning can be considered professional development. In the Ministry of Education there is a unit that coordinates the field of teacher training, and it is responsible for transforming the Ministry's requirements and needs into policy. The professional development of the teachers is managed by the supervisors of fields of knowledge in their field, and it is generally held in centers of professional development of the teaching staffs around the country. It was found that the knowledge of the teaching students is lower than the knowledge of the teaching workers in the system. Hence, the need arises to strengthen the teacher training through the coordination of the professional development to the changing environment, so as to create a uniform continuum (Mandel-Levy & Bozo- Shwartz, 2016).

In recent years, the educational discourse on the training and professional development of teachers in Israel and around the world has broadened. The Ministry of Education in Israel has in recent years led the "Meaningful Learning" Reform, which broadens the teacher's autonomy in the use of innovative pedagogies more relevant to the student and the changing environment and seeks to extend the teachers' manners of learning and find a way to transform their learning into meaningful learning through the cultivation and reinforcement of the teachers' reflection of their actions for the improvement of their professionalism (Weinstock, 2017. pp. 5-45). In addition to the institutional in-service training that is held today in most school, for nearly three years the Ministry of Education has deployed a program called "Pedagogical Flexibility", which enables the school principals to independently build a school-based professional development program tailored flexibly to the needs of the organization and the individuals, alongside the recognition of compensation for the hours learned, in pedagogical issues such as the curriculum, the organization of time, the organization of the learners, the methods and ways of education, teaching, learning, and assessment, and the use of the resources of the teaching force to provide an answer to the unique local

needs. Therefore, innovative frameworks were established for the professional development of the teachers inside the school: leading teachers – the training of teachers for guidance in the school, academia-class – students of teaching who teach alongside the accompanying teacher in the school as practical work required in the academic studies, mentoring on the part of senior teachers with training of the new teachers, evaluation of teachers that includes observation and feedback of lessons for the purpose of the raising in the rank, innovative frameworks for professional development outside of schools performed in professional communities in which the teachers are productive members and responsible in the company of peers. This is in addition to traditional in-service training courses that are held in the centers of professional development and characterized generally by the fact that the participants come from different schools for a limited number of sessions (Mandel-Levy & Bozo-Shwartz, 2016). Thanks to the improvement courses, the teacher's professional knowledge is broadened, which at the same time leaves the teacher, his consciousness. It can be said that these are small steps of vocational education, favoring the awareness and professional functioning at school. These are extremely important factors in the process of learning changes that can cover the whole system. This trend is corroborated by researchers who believe that there is a lack of training adapted to the changing environment in today's professional development process. The training of teachers in Israel has still not dealt with postmodern ideas but rather emphasizes uniform and standard contents in teaching the subjects and evaluating achievements that do not leave room for the development of autonomy, the absence of the use of teaching methods suited to the students' differential needs, and the lack of emphasis of humanist-value-oriented aspects and intelligent use of technology. The topic of the interpretation of the curriculum and the fact that the teachers are a bridge between the policy of education and the educational act are not sufficiently addressed in the processes of training and professional development. The critical look at the programs and their evaluation in the context of the topics of equality and social justice are especially lacking (Ben Peretz et al., 2010, pp. 215-232).

Therefore, for many teachers in Israel the processes of professional development institute an outside addition to teaching and not an inseparable part of it. The best practice in education system with high performances indicates the importance of the integration of

professional development and professional teaching and the new roles for the school and the systemic level in providing direction and support (Shefa, 2015, pp. 141-142). Zohar (2002) explains the gap between the teaching approach in actuality that focuses on the “transmission of the material” and the teachers’ declaration about the importance of the development of thinking skills, in that the teachers do not undergo training that effects a significant change in the construction of their pedagogical knowledge. As students, they learned in the traditional method of the inculcation of knowledge and did not experience learning that focuses on inquiry and their beliefs are based on this experience. To effect a change in their beliefs, first it is necessary to reveal the teachers’ previous knowledge and beliefs and in a supportive reflective process with the raising of the teachers’ awareness it is possible to effect this complex change. One of the significant expressions of this change is the awareness of the transition from teaching that focuses on contents to teaching that focuses on the student (Zohar, 2002, pp. 3-21). A research study that examined the assimilation of information and communication technology in academic institutions of education and teacher training examined the scope of the integration of information technologies in the teaching staffs and pedagogical innovation that the computerization advanced. It was found that the integration of computerization in the colleges is developed but most of the lecturers integrate computerization in teaching at basic levels of usage, and few recruit computerization and communication to create a change in their teaching methods and among the teaching trainees (Porkosh-Baruch et al., 2010, pp. 229-232). The first stage of the teachers as teachers is in the academia. The teachers must adopt teaching new styles both in the schools and in the academia. There needs to be general engagement of the system. Today it is understood that there is a long way to go yet and there are other methods that can be used to appraise the teacher and the students since it is necessary to assess her as a complete intellectual and not as somebody who at the end of the semester needs to submit for a test. It is very important that the academia enable this so that the teacher can provide this inspiration for the students after she has it (Shefa, 2015, pp. 141-142).

Researchers hold that work in professional learning communities is the key to the teacher’s professional development and to the development of her awareness of the change of the school culture. Therefore, the curriculum for teaching needs to help the

teachers learn how to work to improve their work as members of cooperative communities (Bransford et al., 2005, p. 5). In addition, the direction required in the teachers' professional development is to extend their professional expertise and their ability to adjust successfully to systemic, cultural, demographic, and social changes. The reference to the teacher as an "adaptive expert" is based on the model of professional development that emphasizes that the teacher is a professional who is aware of the frequent changes in knowledge, in teaching environments, in the values of society, and in the learners and adjusts to them. This teacher challenges what is obvious and can critique the model presented to her by her teachers and the routines she acquired through them and in their place understand new complexities and act in them (Tsui, 2009. pp. 421-439; Bransford et al., 2005, pp. 1-39).

The teacher's adjustment is expressed in that, to achieve creative teaching in the framework of many dynamic constraints, she must forego, from full awareness, the assumptions on the adherence to what she specializes in after the effortful learning and to again and again turn to new information that it is necessary to adjust, to clarify, and to filter, to preserve part of it and to abandon the other part. The expectation from such a teacher is not only to adopt innovations but to be a partner in their creation. The constant search for solutions and the evaluation of these solutions, with the cooperation of others, makes the teacher into an aware professional for whom change and innovation is not a threat but rather a challenge. The apex of the teachers' professional development is expressed in expertise and in the teacher as a key figure who displays the highest mastery of the knowledge and skills of teaching for the students (Berliner, 2001. pp. 463-482).

According to Doll, the postmodern curriculum must include richness of relations and emotions, in addition to in-depth content of teaching, through dialogue, interpretation of the curriculum, reflective interaction with the environment and others. The culture and knowledge will grant an abundance of areas to cooperative dialogue investigation and the ability to organize, integrate, and ask is developed (Doll, 1993, p. 252). The pedagogical relations address the relations in the curriculum, which include the reciprocal relationships between the teachers and the students and the teaching material, the cultural relations emphasize the relationship between the historical and cultural context and the teaching material, the teachers, and the students. Therefore, the teachers do not need to

limit their perspectives but rather to integrate them in a broader social cultural context, to reveal the assumptions they hold so that the dialogue will be meaningful and changing (Doll, 1993, p. 183).

Today, there is disappointment with the in-service training because it has not succeeded in bringing sweeping proof of the advancement of the teaching and the learning. This disappointment led to the search for directions, frameworks of action, and new tools. In the Israeli education system processes of teacher training and professional development characterized by the principles of post-modernism are steadily developing, with the trend to perceive the educational institution as a social system and the figure of the graduate as main topics (Shapira, 1988, pp. 135-174).

It can be summarized from the review of the literature that to adjust the education system to the postmodern characteristics, it is critically important to have the planning of the training and professional development of teachers that is incorporated with the teaching work and tailored to the changing environment, the coping with postmodern ideas, the development of autonomy, the development and use of teaching methods tailored to the students' differential needs, the emphasis on the humanistic-value oriented aspects, the intelligent use of technology, the interaction with the environment, the interpretation of the curriculum with a critical look at the programs and their assessment in the context of modern social issues – all this with the development of the teacher's awareness of her profession and personal knowledge and its uses, re-examination of the obvious assumptions innate, in her and awareness of the need to change the teaching methods to innovative ones. One of the meaningful expressions of the advancement of the teachers' training and professional development is the development of the awareness of the transition from teaching focused on contents to innovative teaching. This will allow the use of professional teacher's knowledge to implement the curriculum and learning. The teacher will stand at the height of modern tasks, for which the need of not only encyclopedic knowledge, but also the professional one changing and adapting to creative and critical thinking in the didactic and educational process. There will then be assimilation of the previous educational system with a modern one that enables the creation and planning of comprehensive teaching activities that are currently appearing on "islands" in the Curriculum. For the modern professional thinking and teacher's

knowledge to appear at all levels of teaching and learning of, the Israeli educational system should emphasize the transition from traditional solutions to modern solutions that show the desired and least desirable educational changes in which the teacher participates. It will present A variety of instructional styles includes focusing on educational partners that display a diverse level of knowledge. By doing so, the system will expand its messages that seek to implement innovative activities and build modern education.

4. Own Research Methodology

4.1. Research Design

The process of conducting pedagogic research often has a rather complicated character. Every person joining him must be aware of several important aspects that are indispensable elements of research and scientific work. Before the researcher commences to conduct any research, it is necessary to plan specific activities and choose methods to analyze the collected data.

From the very beginning, human has been striving to get to know reality. He did so at the beginning with the use of colloquial and later scientific knowledge. Scientific cognition is characterized by:

- planned and systematic,
- subjected to research purposes,
- objective and also comprehensive in its scope,
- needs to be documented.

The mentioned properties fall within the scope of the methodology of the sciences as one of the fields of the philosophy of science. Her interests are research methods used in science, as well as their correctness, effectiveness and usefulness in formulating theorems and scientific theories in a specific field of knowledge. It was considered as a component of philosophy, along with its other departments, type; theory of cognition (gnoseologia), and ontology, philosophy of values, or human philosophy. Often, the research methodology was qualified as a certain logic section along with applied logic, practical logic and pragmatic logic.

The methodology of sciences is a peculiar dimension of the knowledge of normative scientific methods and the system of specific research directives. It deals with the way of expressing as well as consolidating the achievements of science. The methodology of the sciences analyzes the research procedures and its products, i.e.

- concepts,
- hypothesis
- rights and claims.

The distinguished properties may be conducive to the fact that the researcher may apply quantitative, qualitative or mixed methods to his researching area (Creswell, 2014). The research based on the approach of mixed methods, pragmatic worldview quantitative and qualitative data collection. According to this approach, the researcher bases the investigation on the assumption that the collection of different types of data provides a more complete understanding of a research problem than quantitative or qualitative data alone. The study begins with a broad survey to include results for the population, and then, focuses on quality, unique tasks, and open interviews to gather detailed observations from the participants. The qualitative data collected in order to help analysis the initial quantitative survey (Creswell, 2014. p.48). This approach, will serve the research questions based on the definition that professional knowledge built in a "social learning environment" (Illeris, 2011, p. 46). Consciousness is a subjective process that occurs in the researcher and teacher, influencing the way he operates and assimilates information in the workplace, in the didactic process, but also in the acquisition of knowledge, skills, emotions, social interaction in developing the ability to see and perform educational tasks with tangible effects, they are most important because of changes in the modern world. Accordingly, the study will have positivistic assumptions explaining the findings in a linear and causal manner. In quantitative research, the paradigm is positive.

In this study, the ontological question sees reality as objective and unrelated to the researcher. In these studies, causality may be mutual and the variables affect each other symbiotically (Shkedi, 2003, p. 26). Crotty (1998, p. 1-10) identified several assumptions based on the approach that is consistent with the research questions concerning teachers' awareness and professional knowledge:

1. Human beings construct meanings when they engage in a world in which they interpret.
 2. Humans deal with their world and observe it according to their history and society
- Perspective - We are all born into a world of meaning given to us by our culture.

4. The basic generation of meaning is always social, resulting from interaction with the person community.

4.2. Research Objectives

When conducting research, it is necessary to consider how to explain the goals, what the researcher wants to investigate, what he is aiming for. According to the literature, the aim of the research is "scientific cognition of the real social reality" (Dutkiewicz, 2001, p.50). It is also a description of a given phenomenon, an institution or a person or group of persons under investigation in order to conduct research. They are, therefore, all the activities that the researcher performs to conduct the research. It is a search for an answer to the question - why the researcher takes this action, why it is used and what it leads to, and therefore, what the consequences of the activities may be.

According to Pilch & Bauman, "the aim of the research is to learn which enables effective action" (2001, p. 62). In order to be effective, the methodological awareness of the researcher is necessary to achieve the goals in scientific research. This awareness consists of the following elements:

- axiological perspective - valuing the surrounding reality.
- ontological perspective - it includes learning about the scope of reality and its essence.
- epistemological perspective - the scope of used scientific methods in cognitive reality.
- operational knowledge (Nowak, 1985, p. 26).

On the other hand, Gnitecki (2007), similarly to Kumar (2014), identified three categories of goals that most often used during research works:

- cognitive - usually associated with describing, explaining and predicting various processes in pedagogy;
- theoretical - most often they concern theoretical studies or empirical models during didactic and educational activities, which are later subjected to verification or justification in the research process;

- practical - they include, among others for the development of pedagogical conclusions, such specific advice addressed to individual teachers (Gnitecki, 2007, pp. 317 - 318).

Generally, a goal can be defined as a kind of a specific effect, a factor that the researcher wants to achieve through some specific action. The purpose of pedagogical research may also be, for example, the willingness to learn a teacher's scientifically - functioning, real and experimental work environment, as well as the characteristics of an interesting phenomenon, institution or individual. The objectives of the study are clearly formulated, so that each goal contains only one aspect of the study and is action-oriented. The manner in which the goals are formulated describes the type of research - experimental and indicates the direction of the hypotheses (Kumar, 2014. p. 64).

In the work carried out, it was decided to choose the objectives according to the distinction of the authors of their three categories, i.e.

Cognitive objectives

- Knowing awareness and professional knowledge of the teacher in Israeli schools.

The approach of Illeris (2011.p. 46) is social constructivist and links the teachers' consciousness with environmental interaction. The importance of this approach is the balanced focus on thinking, emotion, and social context, including culture and scientific technological development, which entailed by the reality in the changing global world. The doctoral dissertation and the defined teacher awareness, is influenced by the Illeris theory that the author has developed (the definition falls within the theoretical part of the doctoral dissertation)

- Recognition of the characteristic properties of schools in Israel

The educational approaches and different reforms that have developed in recent years have provided theoretical and research anchors that prove that the shaping of the learning environments and the creation of a relationship with the environment outside of the school are directly related to the betterment of the teaching methods and the cultivation of an optimal educational climate. The distinguished factors influence the personal and professional knowledge and teacher's witness (Bruner, 2000, pp. 15-55; Perkins, 1998, p. 142; Patton et al, 2015. pp. 26-42). The awareness and the

understanding of the importance of the “place” in which the learning occurs is not doubt. Accordingly, much attention is paid to the topic of the school environment in the broadening of the teachers’ professional knowledge and environmental awareness in the course of the training and in the processes of teacher professional development, to adapt the teaching work to the changing environment. The present considerations study will examine the components of the environment and the unique characteristics of the school and their influences on the awareness and professional knowledge of teachers in Israel.

Theoretical objectives

-Creating a theoretical model of consciousness and reinforced by the professional knowledge of teachers.

Practical goals

-Based on the research, practical goals will develop for teachers, associated with writing tips on how teachers should proceed to prefer a modern style of functioning in the profession and combine different types of knowledge further developing their awareness.

- A version of pedagogic teaching guidelines for developing awareness and support the development of the teacher's professional knowledge.

Teaching explicitly through guidelines, clearly connects teachers to awareness through feedback and self-evaluation in a deliberate and conscious way, both in terms of teaching and in terms of learning (Hattie, 2015, pp. 79-91). The development of professional knowledge of teachers has a significant impact on curriculum design and implementation. The more knowledge teachers have in the field they teach, the greater their ability to cope with the unexpected (Schwab, 1973. pp. 501-522). Teacher awareness undergoes a process of change through learning, whatever the learner chooses to pay attention to (Illeris, 2007.p. 17). Therefore, the idea of teacher awareness and the extent of its knowledge takes into account the teacher's interdisciplinary perspective on teaching materials, which will expressed in a model that clearly links teachers to awareness, and characterizes the challenges of the modern world, with an emphasis on the development of science and technology in this context, affecting the teacher.

The objective of the research study is to implement the knowledge on awareness and professional knowledge of teachers in Israel. Research studies show that teachers are aware of (James, 1950. pp. 145-183; Goleman, 1996, pp .231-240; Kincheloe, 2007, pp.

1-60; Illeris, 2007.p. 17), present different types of professional knowledge they should use during the fulfillment of their professional obligations (Schoonmaker & Ryan, 1996, pp. 117-151; Shulman, 1988, pp. 31-38; Cochran-Smith and Lytle, 1999, pp. 249-305).

4.3. Problems and hypotheses

The considerations to choose the research question are: interesting topic, extensive knowledge exploration, measurement of clear concepts, level of expertise, relevant subject matter - the research adds to the body of existing knowledge and bridges existing gaps or is useful for policy formulation, data availability and ethics - ethical problems have been thoroughly examined in the problematic phase (Kumar, 2014. p. 59-60).

The doctoral dissertation presents the problem of the teaching profession. He emphasizes the importance of education, further improvement, individual predispositions, awareness, acquired knowledge and experience. Gathering information about teachers in their planning of their work, their ways of teaching, and observation of lessons in the class. Experience indicates that until now teachers in Israel still teach according to the traditional model. Frequently the teachers convey knowledge and the students are required to assimilate it (Berliner, 2011, pp. 287-302). The students of the new generation are required to learn through research, experience, interaction, and collaboration, with emphasis on what interests them (Pape, 2009), and the teachers' task is to plan situations and learning spaces adjusted to the child's development (Bennett, 2015. pp. 11-13). Therefore, it is important to understand and to learn the teachers', awareness of professional knowledge and work, in their personal space and to understand the educational approaches that influence their work style, in the assimilation of skills, in the improvement of learning, in the use of available research literature, in the integration of theory and practice, in the achievement of successes and failures, in the ability to cooperate with peers at work, in the enrichment of the activities that they perform, in the achievement of successes and failures, and in the ability to cooperate with colleagues at work (Berliner, 2011, pp. 287-302).

All these factors are contained in the teacher's personal space (Clandinin, 2014, pp. 361-385), and are the outcome, to a greater or lesser extent, of the teachers' awareness (Illeris, 2003, p. 227). Teaching awareness is one of the most important factors of professionalism, regardless of the model of education (Kincheloe, 2007, pp. 1-60; Illeris, 2011. p.46). The accumulated material from the research will contribute to the change of the work style of the research respondents and will allow the development of alternative ways for independent learning to enable the transformation of the teachers' professional practical knowledge.

Taking into account the presented considerations, one should consider how the problem is understandable. The research problem is "the question about the nature of the phenomenon under investigation, the essence of relationships between events or beings and process characteristics, features of the phenomenon" (Pilch & Bauman, 2001, 43) There is no science without asking questions and trying to find answers to them. Asking questions determines the level of ignorance and allows for in-depth focus, analysis of a given phenomenon that is of interest to the researcher and is the driving force of his actions. The research problem is a question about what a person wants to examine in his / her work. This is the main thought that guides research, which is the engine for work and seeking answers to the bothering question and looking for new solutions. Autors defines the research problem as follows: "a question that becomes a verbal formulation of perceived difficulties" (Pilch & Bauman, 2001, p. 64). This is a question about what the researcher does not know and what he wants to investigate through his research. These questions may concern difficulties encountered, interesting dependencies or modern concepts and their application. Asking questions and looking for answers is a prerequisite for any research, it is a process of solving problems and seeking new solutions, it leads to acquiring new knowledge and establishing new rules. Questions in the research work should therefore be: exhaustive and explain the given topic and should show the ways and directions of research (Pilch & Bauman, p. 192).

There are many classifications of research problems. Cackowski (1964) distinguishes scientifically and subjectively research problems. Scientific and research problems "are aimed at discovering universally unknown phenomena, to discover phenomena that have never been known to scholars" (Cackowski, 1964, p. 105). On the

other hand, subjective-research problems are those that are new only to those who ask, there are earlier studies that confirm or deny given phenomena. Ajdukiewicz (1938) divides research problems due to the questions used in them, which he calls questions of resolution and completion. Resolution questions are those that start with a particle or, as a rule, require confirmation or denial. Supplementary questions usually start with a particle and, as a rule, require a more detailed answer (Ajdukiewicz, 1938, p. 43). Sztumski, in turn, distributes research problems according to their role, scope and significance that they perform in research. We can distinguish problems: "theoretical and practical, general and specific, basic and partial" (Sztumski, 1999, p. 51). All these categories divide the problems into two categories, one of which is more general, consisting of one main problem, the other as a supplement and augmentation of the problem under examination, consisting of more questions.

In this work, I will use the division of general and specific research problems.

The Main Research Problem

What is professional knowledge and awareness of Teachers in Israeli schools?

Detailed Research Problems

1. What is the professional knowledge and awareness existing among the teachers from schools in Israel who will participate in the research?
2. What is the professional knowledge and awareness of the modern functioning of teachers in the didactic approach to the performance of duties at a school in Israel?
3. How is the professional knowledge and awareness of the modern teaching of teachers expressed in using their skills in teaching and learning at school in Israel?
4. How is teachers' professional knowledge and awareness to modern teaching influencing use of types of knowledge at school in Israel?
5. What personal characteristics of teachers are used in modern school work in Israel?
6. How do the school's characteristics as a workplace, will be used by modern functioning of teachers in a school in Israel?
7. How the school climate affects teachers' professional knowledge and awareness and their modern work at school in Israel?
8. What barriers limit teachers' professional knowledge and awareness and their modern work at school in Israel?

9. What is the professional knowledge and awareness of the traditional functioning of teachers in the didactic approach to the performance of duties at a school in Israel?
10. How is the professional knowledge and awareness of the traditional teaching of teachers expressed in using their skills in teaching and learning at school in Israel?
11. How is teachers' professional knowledge and awareness to traditional teaching influencing use of types of knowledge at school in Israel?
12. How is teachers' professional knowledge and awareness to traditional or modern teaching affect teacher's functioning in the school in Israel?
13. What personal characteristics of teachers are used in traditional school work in Israel?
14. How do the school's characteristics as a workplace, will be used by traditionally functioning of teachers in a school in Israel?
15. How the school climate affects teachers' professional knowledge and awareness and their traditional work at school in Israel?
16. What barriers limit teachers' professional knowledge and awareness and their traditional work at school in Israel?
17. What is the use of different types of knowledge: self-knowledge, personal knowledge, professional knowledge, environmental knowledge and knowledge of others in modern and traditional functioning as teachers in a school in Israel?
18. What are the characteristics of the school in Israel as a teacher's workplace?
19. How do the characteristics of the school as a teacher's workplace affect their professional knowledge and awareness?
20. What factors have the greatest impact on professional knowledge and awareness of teachers in schools in Israel?

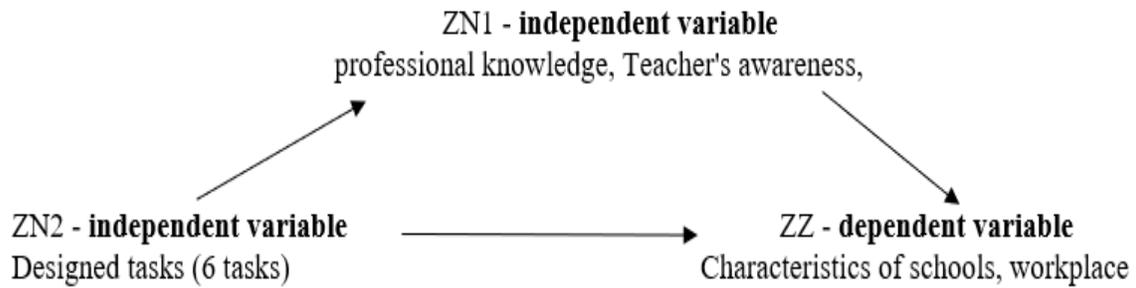
Various researchers indicate that experimenting is combine with:

- Enabling the increase of credibility of pedagogical research undertaken,
- Facilitate the researcher's connection with the broadly understood pedagogical practice,
- A source of inspiration for various pedagogical innovations.

The above properties show that experimental studies do not have to lead to generalizations on a broad population, but they can revive the existing teaching practice,

expand knowledge and awareness, expanding the professional field of activity. Therefore, as a researcher for a better understanding of the subject taken, it was decided to present problems for planned experimental research and a description of the designed tasks (later in the chapter). For this purpose, the graphic diagram shown below is used.

Figure 3: Description of the variables



Source; own elaboration

In addition to the above-mentioned problems, it was decided to further specify the questions in the experimental research. They are as follows;

1. How does the variety of solutions for designed tasks result from teachers' professional knowledge and awareness and characteristics of the school as their workplace?
2. What is the scope of solutions for the designed tasks, that results from the professional knowledge and awareness of the teachers and the traditional functioning at the school as their workplace?
3. What is the scope of solutions for the designed tasks, that results from the professional knowledge and awareness of the teachers and the modern functioning at the school as their workplace?
4. What solutions for the designed tasks (according to methodological criteria) are offered by the teachers with the professional knowledge and awareness of the modern and traditional functioning at the school as their workplace?
5. Which factors most influence professional knowledge and awareness of teachers and their workplace?

When a prediction relationship tested by scientific methods, it is termed as research hypothesis. The research hypothesis is a predictive statement that relates an independent variable to a dependent variable. Usually a research hypothesis must contain, at least, one independent and one dependent variable (Kothari, 1990.p. 34) .The hypotheses bring clarity, specificity and focus on a research problem, but it is not necessary to formulate a hypothesis in order to conduct research. The importance of the hypotheses lies in their ability to bring direction, specificity and focus to research. They direct the researcher to the specific information to be collected, thereby providing greater focus. The hypothesis is an assumption of a phenomenon, a situation, or a truth that the interrogator does not recognize and becomes a basis for investigation. In most studies, the hypothesis will be based on previous studies (Kumar, 2014. p. 85-88).

Setting the right research problems at work is the central thought process that is the basis for further research and the creation of hypotheses (Pilch & Bauman, 2001, p.44). The hypothesis is a proposal to answer a given question, which results from a research problem, it is also a proposition of a scientific theorem. It should be checkable. It is expressed in the form of a relationship between the dependent variable and the independent variable.

Formulated hypotheses regarding the dependence of research in diagnosis:

1. Professional knowledge and awareness are the most important factors affecting the use of professional knowledge in Israeli schools.
2. Israeli teachers, who are aware of the traditional education and contemporary education, will use their professional knowledge in diverse and interesting.
3. The physical and organizational characteristics of Israeli schools are mostly traditional and they define the working conditions of the school and influences the professional knowledge and awareness of teachers of traditional or contemporary education.
4. Israeli teachers are more aware of traditional education and therefore do not use their professional knowledge in diverse and interesting ways, and in most cases, teach the traditional way in a changing world.
5. The following factors: cognitive thinking, emotion and the environmental-social context that includes culture and scientific and technological development, which

is necessary in a changing global world, have the greatest impact on the professional knowledge and teachers' awareness in the place of their employment.

Hypotheses for experimental research were written separately. They are as follows:

1. The variety of solutions for the designed tasks, mainly results from the professional knowledge and teacher's awareness and the characteristics of the school as their workplace.
2. The scope of solutions for designed tasks, which results from the professional knowledge and teacher's awareness and traditional functioning at the school as their workplace, is high.
3. The scope of solutions for designed tasks, which results from the professional knowledge and teacher's awareness and modern functioning at the school as their workplace, is low.
4. The innovative solutions for designed tasks are offered by the teachers with the professional knowledge and awareness of modern functioning at school as their workplace. yet, traditional solutions for designed tasks are offered by teachers with professional knowledge and awareness of traditional functioning at school as their workplace.
5. The teacher's professional expertise is built slowly and steadily, like a mosaic of various kinds, and includes the accumulated knowledge of the unique characteristics of the school environment (a particular educational institution).

4.4. Variables

Variables are "a few basic constitutive features for a given event" (Pilch & Bauman, 2001, p. 50), which together in empirical language form facts, processes and events, eg number, quantity, level, size (quantitative variables), cause, effect (qualitative variables). Variables are therefore featuring of a given phenomenon or group or group. On the other hand, J. Brzezinski calls a variable value, he says: "if we can say about a given property that it accepts different values, then it is a variable" (Brzeziński, 1984, p.22). Thus, we can call a variable so that we can call a certain tendency, characteristics or property in the studied environment.

Types of variables are dependent variables and independent variables. A dependent variable is a feature that we measure in the study, we measure it and whose value depends on the value of an independent variable. It is a variable that is the subject of research, and whose relationships between other independent variables are measured. The independent variable, on the other hand, is a variable that we manipulate in the study by acting and measuring the direction, strength and values between particular features. (Pilch & Bauman, 2001, p 51). The independent variable is the variable that helps to measure the dependent variable and determines its value.

A variable is a characteristic of a person, object or phenomenon that can be measured in different values (Getu, & Tegbar, 2006, pp. 34-39). According to Kerlinger, A variable is a property that takes on different values, a symbol to which numbers or values are attached (Kerlinger, 1986, p.27). There is a difficulty in measuring complex variables in the social sciences, such as emotions and preferences using scientific methods. Therefore, there is a use of questionnaires and tests carefully constructed, using technical procedures that enable the reduction of uncertainty. There are indicators that represent the theoretical variables. The traits which are desirable but not measured directly, but the observable behavioral aspects considered as the index of the traits (Kothari, 1990, pp. 69-70). The independent variable is the factor that should be responsible for a change in a phenomenon or condition. The dependent variable is the result or change created by the introduction of an independent variable (Kumar, 2014, pp. 62-73).

The following variables have distinguished in the study:

- Professional Knowledge of Teacher
- Awareness Teacher
- Teacher characteristics
- The properties of the Israel Schools.

The arrangement of variables in experimental research is higher. For better orientation, the most important values of the variables selected for the study were recalled. The variables are explained below starting with a definition whose properties were developed in chapter 1.

The process of the development of the consciousness through the three stages of FSS:

1. Focusing- 'I know what I am doing'.
2. Subject interpretation into an objective reality that is based on three components:
cognitive – knowledge and skills- "I understand why I am doing".
emotional – feelings, thoughts, experiences, memories- "what is meaningful for me is not necessarily meaningful for you"
social – interaction with the environment- "different expression in different cultures".
3. Self-Controlling through storage of the information in the long-term memory in organized patterns in which networks of significant concepts are related to one another and serve as tools for the profound understanding and actions of response of future experiences – 'I am responsible for my knowledge.

A conscious teacher is a teacher who has experienced a process of taking responsibility and self-control over the influences of the environment. The increase of the teachers' awareness of the processes of thinking and doing, as a result of the internal and external events around them, may help teachers map their abilities, needs, and expectations, understand the factors of their behavior, plan their course for the future, and define for themselves goals commensurate with the requirements. The awareness grants the teachers an opportunity to take responsibility over the knowledge and thus may change the school experience.

The definition of teacher awareness influenced by Illeris' theory developed by the author. According to Illeris social approach, teachers' awareness is associated with environmental interaction. The importance of this approach is the balanced focus of cognitive thinking, emotion, and the social context that includes culture and scientific and technological development, a necessity in a changing global world.

Then the teacher's Professional Knowledge recalled (see: chapter 2). Teacher's knowledge includes different types of knowledge, skills, opinions, understanding, insight, meaning, attitudes, and other terms that can serve also as types of knowledge. The questions that arise are as follows. Do the teachers know what they know? Do the teachers know what they do not know? The investigation of the teachers' awareness of their types of knowledge is no less important than the investigation of the teachers' knowledge itself or its development since the awareness of the knowledge influences the desire to attain it, to develop it, and to improve it. It is important that the teachers be

aware of the fact that they can acquire knowledge without being aware of it, an action they do every day (Illeris, 2007, p. 17). The discussion of the different models that define the teacher's knowledge enables the illumination and analysis of five shared and prominent characteristics that include all the types of knowledge that develops among teachers in the schools.

The research study will focus on these types of knowledge:

1. Knowledge of self. The teacher's inner world, beliefs, opinions, and personality themes.
2. Self-knowledge. The general personal and practical types of knowledge of the teacher.
3. Professional knowledge. Content, pedagogical and curricular knowledge.
4. Knowledge of the environment and the school. The teacher's knowledge in the institutional context, the school culture, the social and organizational framework in which the teacher operates.
5. Knowledge of others. Knowledge of the learners and the colleagues.

The five types of knowledge focus on the teacher's internal and external world, the teacher's awareness between the internal knowledge and the external knowledge. The information about the different types of the teachers' knowledge will constitute a basis for the identification and characterization of the types of knowledge that the researched teachers use in their daily work in the schools in Israel. In addition, this information will constitute the basis for the analysis of the awareness or the lack of awareness of the teachers of the types of their knowledge and awareness of the way in which they use their knowledge in the practical work in the school with reference to the influences of the environment and the changing reality. The development of the teachers' awareness of their types of knowledge may be useful for them to plan the teaching and in addition for the recognition of the steadily increasing need in the modern world to adjust and improve the teachers' learning.

The Teaching works analyzed according to three main approaches: the first approach focused on the teacher, the second approach focuses on learners, and the third approach combines both approaches. These approaches represent different levels of teacher involvement from full involvement to minimal involvement. The three

approaches of teaching styles will form the basis for identifying innovation among the subjects.

Another basis for mapping teacher's professional knowledge is by analyzing teacher's learning processes according to two main general characteristics. First, personal learning characteristics include personal motivation, self-knowledge, perseverance, thinking skills, independent learning, diversification in the teaching methods, and use of direct teaching and learning. Second, environmental learning characteristics include interaction with colleagues, belonging to the professional learning community, response to difference, and interaction between previous knowledge and experience and new knowledge.

The identification of the types of professional development among the respondents will constitute a basis for the examination of the ways for the building of the respondents' knowledge. The identification of the barriers and opportunities to develop awareness and raise awareness of barriers and opportunities among respondents will enable teachers to improve their learning and prevent further barriers to awareness in the future.

Next, an explanation of the Israeli schools (see: chapter 3). The educational approaches and different reforms that have developed in recent years have provided theoretical and research anchors that prove that the shaping of the learning environments and the creation of a relationship with the environment outside of the school directly related to the betterment of the teaching methods and the cultivation of an optimal educational climate. The distinguished factors influence the personal and professional knowledge and teacher's witness. Today we can see in these kinds of teacher's knowledge the presence of traditional components that perceived in Israelis educational institutions. The traditional physical and organizational characteristics, which exist in the decisive majority of the schools in Israel, make it difficult for the teachers to help in the physical, digital, and social environment. They have a decisive influence the teacher's professional knowledge and awareness, which expressed in the teacher's emotional and cognitive functioning, in the interaction with the social, cultural, and material environment.

The awareness and the understanding of the importance of the "place" in which the learning occurs not cast in doubt. Accordingly, great attention accorded to the topic of

the school environment in the broadening of the teachers' professional knowledge and environmental awareness in the course of the training and in the processes of teacher professional development, in order to adjust the teaching work to the changing environment.

The present considerations study will examine the components of the environment and the unique characteristics of the school and their influences on the awareness and professional knowledge of teachers in Israel.

4.5. Research Methods

There are various methods of collecting data, and most of them can be used in qualitative and quantitative research in various ways. The choice of the method depends on the objective of the research, the available resources and the skills of the researcher and it is important for ensuring the quality of the information. This method of data collection includes the methods of a diagnostic probe and it contains observations, interviews, and questionnaires. The difference between methods for collecting quantitative and qualitative data is mainly in the manner of implementation of the actual method. The methods in quantitative research require standardization of questions or rigid adherence to structure and order, a predetermined process, as opposed to qualitative research methods in which the questions are not predetermined or standardized, characterized by flexibility and freedom in terms of structure (Kumar, 2014, p.3).

There are two main approaches to collecting information: from primary sources that provide first-hand information, and secondary sources that provide second-hand information. None of the methods provides accurate information 100 percent. The main methods resulting from the use of a diagnostic survey, thanks to which we collect data in the initial phase of research, are combined with; Observation, selective way of watching and listening to an interaction or phenomenon as it takes place. When the researcher interests in the behavior and interaction than in the perceptions of individuals. In the "Participatory Observatory", the researcher participates in the group's activities and in "observation that does not participate", the researcher does not interfere in the Group's operations. The Interviewing is a commonly used method and it includes any person-to-person interaction, either face to face or otherwise, between two or more individuals with

a specific purpose in mind. The questionnaire is a written list of questions, the answers to which recorded by respondents. In a questionnaire respondents read the questions, interpret what is expected and then write down the answers (Getu, & Tegbar, 2006, p. 58). Examples of secondary data collection: Various publications, books, reports, documents, diaries. The researcher should examine whether the use of the data is reliable, appropriate and possible (Kothari, 1990. p. 111).

This study will combine two research methods, a quantitative method and a qualitative method. Both fall within the scope of diagnostic and experimental research. Mixed studies were therefore used. A mixed system study combines the collection and analysis of quantitative and qualitative data. Data collected simultaneously or sequentially, taking precedence and involvement in the integration of data at one or more stages of the research process.

The purpose of this method is to cover many types of knowledge and to develop a deeper and fuller understanding of the research problem by merging quantitative and qualitative data and comparing the two databases. Each of the paradigms has limitations and biases, and therefore the use of more than one method can neutralize or overcome the biases of the method differently, thereby contributing to the verification of the findings (Creswell, 2014, p. 32). The mixed method recognizes the importance of traditional quantitative and qualitative research, and provides new, full, balanced and efficient information (Johnson et al.,2007, p. 129). Using a combination of different data collection techniques can maximize the quality of data collected diagnostic and experimental research and reduce the likelihood of bias, combining qualitative and quantitative approach provides a wealth of data and a deeper insight into the phenomenon under investigation (Getu, & Tegbar, 2006, p. 59).

The stages of the study

The current study is a four-stage study in a combined research method whose goal is to collect quantitative and statistical data.

-In the first stage using a questionnaire. The number of participants in the quantitative study will be 90 teachers (Israel purposeful selection of schools).

Data on participants will be collected from the author's questionnaire containing the data sheet, thanks to which information on sociographic data is acquired. This stage

falls within the scope of diagnostic research. In addition, the data will enable the characterization of the workplace of the examined teachers. It affects the awareness and professional knowledge of them.

-The second stage, its purpose is to collect quantitative and quality data using innovative tasks - includes experimental studies. This stage includes the collection of data from diagnostic and experimental research. An experimental and control group will be randomly selected for the experiment. In each of them there will be 45 people. However, the experimental group will be selected according to the mechanism of unlimited systematic draws. For him, the operator of the draw will be a list of people and a selected unit of draw. It will be the choice of every second person from the list until a 45-person group is formed. The other people will enter the control group. In the experimental group, the effect of intervention on the dependent variable will be examined. This group will work on various innovative tasks that will be built independently to understand the nature of the awareness and professional knowledge of teachers in Israeli schools as a central phenomenon. When a group is exposed to usual conditions, it is termed a "control group". The technical term "control" is used when we design the study to minimize the effects of extraneous independent variables. In experimental researches, the term "control" is used to refer to restrained experimental conditions (Kothari, 1990, p. 34). Experimental design with a control group is the closest to a technically correct design for impact assessment of an intervention. One of the biggest advantages of this design is that it enables you to isolate the impact of independent and extraneous variables (Kumar, 2014, p. 82-83). In addition, the researcher performs verification and collects products from respondents. He develops their methodological criteria, thanks to which he estimates the solutions of tasks designed to be completed by teachers. It evaluates them on a scale of 0 to 9 points. This indicates that tasks can be performed at one of the following levels:

- low - from 0 to 3 points
- medium - from 4 to 6 points
- high - from 7 to 9 points.

To obtain an objective evaluation of products in the form of solved tasks, the researcher may use the subjective criterion. It is the work of a group of competent judges

(3 or 5 people) who estimate all solutions. They are analyzed in terms of quality and quantity (by calculating standard deviation). A detailed interpretation of the results will be included in the analysis of the results of own research.

- The third stage is to collect qualitative data through in-depth interviews. 10 participants from the study population will be selected randomly. Five of the experimental group and five of the control group for in-depth interviews with open-ended questions, in order to investigate and understand the quantitative and qualitative findings in greater detail and depth.

There are structured interviews where the questions are set in advance, the use of the same wording and the order of questions as detailed in the schedule, and they provide uniform information and there are misunderstandings where the wording of the questions and the raising of the topics is according to the discussion (Getu, & Tegbar, 2006, p. 58). In this study, semi-structured depth interviews will be used. Some of the questions will be determined in advance according to the subjects of the research, and some of the questions will be raised during discussion. In-depth interviews have many advantages. The interviewer can inspire honesty and maintain the respondents' interest, dispel anxiety, repeat questions that were not understood, and provide explanations, if necessary, to clarify a response and to observe the way in which the interviewee responds during the interview. All this while taking precautions not to affect the responses, neutral and documenting the respondent's exact answers without further interpretation (Getu, & Tegbar, 2006, pp. 57-58).

- The fourth stage is a test. Its purpose is to examine the effect of the intervention on the study participants and to complete the study.

Experiment description

Experimental research systems were developed to address the causal relationship between the independent variable and the dependent variable in the study. The conditions for causality are: the experiment is anchored in theory and has a theoretical explanation, the existence of a statistical relationship between the variables, control over the schedule - the independent variable precedes the dependent variable and the ability to refute alternative explanations - internal validity.

There are different types of experimental research arrays, the main types are as follows:

1. The classic experiment: two groups of experiment and control with the initial and final measurement
2. Solomon's experiment: four groups of experiment and control, two of them are without initial examination, but only final measurement
3. "After" experiment: two groups of experiment and control, without any initial examination, but only a final measurement.

In this study, the classic experiment will be performed. The elements common to all types of experimental plans, based on the following characteristics:

- Random assignment to an experimental group and control group
- Controlling the timing of the activation of the manipulation, the choice of the dimensions of the dependent variable, the timing and nature of the measurement (Kothari, 1990, p. 39-40).

Experimental research plans have an advantage in that they examine causality and strengthen internal validity. Internal validity deals with the question: Are the results obtained in the dependent variable due to the manipulator performed by the researcher in the independent variable? The internal validity refers to the question of the exclusivity of the manipulation and is of great importance since the refutation of alternative explanations is a condition for deriving a causal connection.

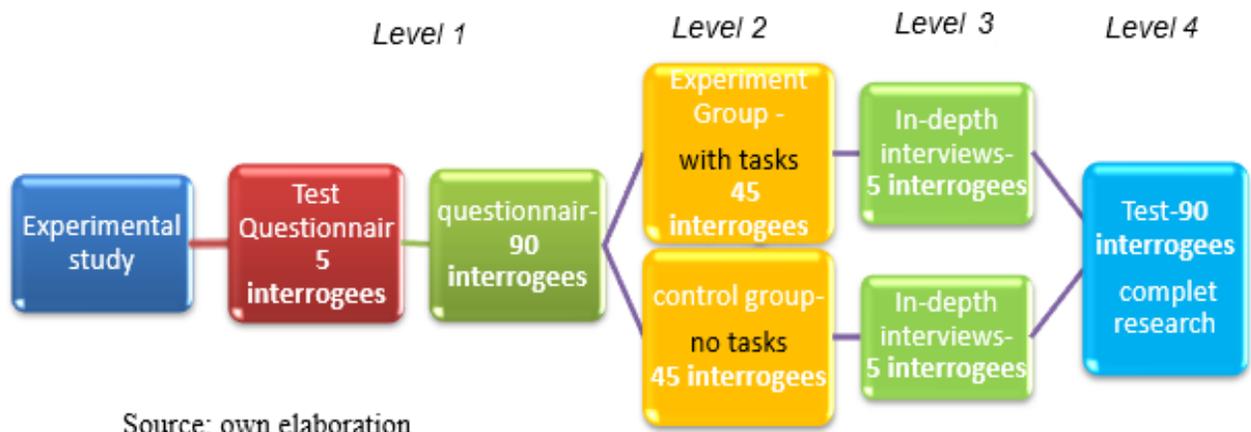
Manipulation - assigning different values of the independent variable to the different groups to examine the implications of the dependent variable. Manipulation is not "natural" but the researcher activates the independent variable and this is the only difference between the experimental group and the control group. The assumption is that if there are differences between the groups in the dependent variable after the activation of the manipulation, these differences result from the manipulation, that is, from the values of the independent variable. In this study, the two groups are similar in all parameters but differ in the values of the independent variable, the first group is exposed to the innovative tasks for awareness, and the second group is not exposed to these tasks.

Process Control - The researcher has control over the entire process: a schedule - what precedes what, an environment - a distinction from the external environment so that

other factors will not influence it. Control of external factors - the experiment is conducted in a controlled environment, control over the independent variable (manipulation), control of the precursors (random assignment assumes that the groups are similar), control of the time series - the independent variable before the dependent variable. The control is intended to disqualify alternative explanations Studies have found that early testing usually reduces the effect of the experiment, and it is likely that early testing will affect the dependent variable by making participants aware of their attitudes and encouraging participants to defend themselves before manipulating, so it is difficult to know whether the manipulation alone caused the result (Kothari, 1990.p. 42).

In order to understand the experimental plan in this study, here is a diagram:

Figure 4: Research Methods



Explanation chart

Level 1 - diagnostic verifications - questionnaires

- Planning and writing the questionnaire and checking 5 questionnaires by five teachers on an individual basis and correcting the questionnaires as needed
- Personal application to 90 teachers on a personal basis and submission of questionnaires to completion by 90 teachers. Each teacher completes a questionnaire separately. Documentation of full questionnaires based on identifying details: age, place of work, gender, years of experience, education,

affiliation, sector, training. In addition, documentation characterizing the main subjects examined

Level 2 - Experiment

Divide the group of 90 teachers into two groups of 45 teachers in each group in a randomized manner:

- The experimental group of 45 teachers received six tasks, in five groups of nine teachers in each group
- The control group of 45 teachers without tasks – designing a test to test knowledge (5 types) and consciousness - here the tasks must be different than in the experimental group and rated on a scale of 0 to 9 points - this will be the final measurement

Level 3 - diagnostic verifications - interviews

Planning and writing the interview, conducting an in-depth interview for 10 teachers who will be deliberately chosen:

- five teachers from the experimental group, each teacher individually
- five teachers from the control group, each teacher individually

Level 4 – Test- Completion of the study

Planning and writing test and examination of 5 tests by 5 teachers on an individual basis and correcting the test as required. Delivering the test for completion by 90 teachers who were surveyed in step 1, each teacher fulfills a test individually. Documentation of the complete tests according to the main subjects examined.

4.6. Research Instruments

Designed stages of scientific research take into account the search for the truth. The ideal of science is to achieve a systematic adjustment of facts. The scientific method attempts to achieve this ideal by means of research tools that serve as a means of exploring hypotheses and discovering new relationships between variables. (Kumar, 2014. p. 9-10) Research tools used by the scientific community for the study of hypotheses are ways of finding knowledge (Shkedi, 2003, p. 59). The main research tools in the field of education and social sciences for years were quantitative tools and

experiments based on the scientific model. From the mid-1990s, educational researchers began to use qualitative research tools based on the subjective humanistic approach, which opened up new possibilities for researchers to observe behavior from a human perspective. Some believe that qualitative research has ended the debate on the objectivity of research in the social sciences (Sabra-Ben Yehoshua, 2002, p. 18). However, questions arise such as, what is the "golden Road" between the involvement, integration and empathy of the researcher and the distance and critical thinking (Woods, 1996, p. 38) and to what extent are the phenomena studied intelligible to the researcher through the research tools, as the participants experience them? The answers to these questions depend on the researcher's skills and qualities in selecting the research tools, in their integration into the research and as a main conduit for data collection and analysis (Shkedi, 2003, p. 59). Selection of research tools for data collection is based on the accuracy of the information that can be obtained from research tools and practical considerations, such as the need for manpower, time, equipment, and others (Getu, & Tegbar, 2006, p. 55). Some researchers argue that the researcher should choose the research tool according to the type of research he is conducting, in a quantitative study that seeks to reach conclusions and inclusion based on measurable data processing the questionnaire and survey will be used, in contrast, in qualitative research that seeks to conduct an investigation only for the specific group of subjects which the study examines, will be used for in-depth interviews and narratives (Shkedi, 2003, p. 61). Quantitative research relies on diagnostic research tools that provide a standard framework to restrict data to predefined analysis categories while qualitative research seeks to capture what people have to say (Patton, 1980, p. 20). Others argue that most research tools qualitative and quantitative research can be used, the distinction between the research tools stems mainly from the limitations imposed on flexibility, structure, sequencing, depth, and freedom that the researcher chooses to use during the research process (Kumar, 2014, p.131). Some add that a combination of different research tools can maximize the quality of data collected and reduce the likelihood of bias. Researchers often use a combination of flexible and less flexible research tools. Flexible techniques, such as semi-structured interviews through open-ended questions, focused group discussions are called qualitative research techniques, they produce quality information,

which is often recorded in narrative form. structured questionnaires that allow the researcher to quantify in advance or after classifying answers to questions are an example of quantitative research techniques (Getu, & Tegbar, 2006, p. 58).

This study will be a combination of quantitative and qualitative research tools based on a philosophical assumption according to which human consciousness is dynamic, complex, and flexible (Keenan, 2010, pp. 1038-1060). Therefore, it is very important to understand how man perceives himself and the environment through different ways and integrated research tools. The combination of quantitative and qualitative methods is closer to the truth than any approach separately (Yoshikawa et al., 2008, pp. 344-354).

Gathering information was used to design the following research tools.

The questionnaire is a written list of questions, the respondents read the questions, interpret what they expected and then record answers. The questionnaire has several advantages: it managed collectively for the research population, it offers greater anonymity because there is no face-to-face interaction between respondents and researchers and this method provides greater anonymity (Kumar, 2014. p. 138). Strict questions, clear and pleasant reading, a sequence of questions that allows easy tracking. The questionnaire developed in an interactive way to assist the respondents by providing a detailed explanation of each question if they encounter difficulty.

The questionnaire includes questions of two types:

In the first part, the respondent is asked to answer personal details, and then there will be statements that will present positions regarding the awareness and knowledge of the teachers. The Respondent is asked to relate to each variable and evaluate it on a 5-point Likert scale (disagree, disagree, agree, agree and agree (Creswell, 2014, pp. 92-97) The Respondent also required to complete details regarding the teacher's training and experience in teaching according to the following subjects:

- Awareness of innovative teaching and traditional teaching will expressed in teaching approaches, skills integration, and learning structure.
- Awareness of teacher functioning will expressed in the cognitive, lack of problems - less variables and social fields

- Awareness of the teacher's professional knowledge will be expressed in: self-knowledge, personal knowledge, professional knowledge, environmental knowledge and knowledge of others
- Teacher will be reflected in personal learning characteristics and environmental learning characteristics.
- Opportunities for teacher's awareness will be expressed in school climate
- Barriers to teacher's awareness and professional knowledge
- Characteristics of school as a workplace of teachers surveyed

In the second part of the questionnaire, there will be five open questions that deal with teaching work. Teachers are asked to mention the easiest and most difficult steps for them and their students. The analysis will include two types of data in combination with data integration. Data collection will be continuous with equal emphasis for each database (Crotty, 1998, pp. 1-10).

Questionnaire validation

The questionnaire was developed independently in order to serve as a measuring tool for the "truth" questions that can be attributed to the conclusions drawn from the findings from the measurement tools presented in Chapter 5.

Validation of the questionnaire represents the extent to which the questionnaire, as a formal measurement tool, measures what is intended to be measured in the study, as well as the extent to which the conclusions and actions taken on the basis of the assessment are indeed accurate and appropriate.

Accordingly, the validity of the questionnaire is the most important consideration in the development and use of measuring or evaluation tools used to make important decisions. A high measurement validity level may be determined when a measuring instrument produces information that may lead to correct, accurate, and reliable decisions.

In the validation process, an established scientific argument is constructed, which supports the interpretation of the data generated by the measurement tools and the proposed actions based on them. In addition, the validation process negates all alternative explanations and all intervening variables that can be plausible (Creswell, 2014. pp. 251-252)

For the purpose of the validation of the research questionnaire, an explorative factor analysis was conducted, using principle component analysis with a Varimax rotation. This analysis resulted in 13 factors, explaining 82% of the variance of the questionnaire (87.4% among men and 87.0% among women). Two items (4, 39) did not achieve the minimum level of loading (0.40) among the general sample, while among the samples of both men and women all items achieved the minimum level of loading. Additionally, few items were simultaneously loaded on more than one factor. Thus, these items were attributed to the relevant factors by their world of content, so that the final classification resulted in seven factors. Table 1 presents the loadings of items on the seven factors (chapter 4, p. 24).

Table 1: Results of an explorative factor analysis

Factor	1	2	3	4	5	6	7
Subject	opportunities to awareness	Awareness of teacher's function: emotional	Awareness of teacher's function: cognitive-social	Learning of teachers	Professional knowledge	Self personal knowledge	Awareness traditional/ Innovative teaching
items	36 37	16 17	14 15 18 19	30 31 32 34	24 25 27	21 22 23	1 2 3 6 7 8 9 12

Source; own study - General analysis

According to these findings, the research variables were computed as follows:

Awareness to traditional/innovative teaching was computed by the mean of items 1-13, as higher score indicating on higher awareness to innovative teaching and lower score indicating on higher awareness to traditional teaching. The answers were on a Likert scale between 1-5 (1=not at all, 5= very much). Items 7-13 were reversed items.

It is important to explain that factor analysis results showed that item 5 was loaded on a different factor along with items 6-7 and therefor was included in this factor (items 6-7 were loaded on the awareness to innovative/traditional teaching factor as well). Item 11 was loaded on a different factor along with item 12 and therefor was included in this factor (item 12 was loaded on the awareness to innovative/traditional teaching factor as well). Items 10, 13 were loaded on a different factor but were included in this factor since they represent its world of knowledge (reliability analysis confirmed it). Reliability analysis of Cronbach's Alpha found to be $\alpha=0.87$ ($\alpha=0.67$ for men and $\alpha=0.89$ for women) that is considered to be high reliability, and supported the validity of the questionnaire.

Awareness to traditional/innovative teaching had three subscales:

Teaching approaches: was computed by the mean of items 1, 2, 8, 9. Cronbach's Alpha found to be $\alpha=0.80$ ($\alpha=0.79$ for men and $\alpha=0.86$ for women).

Combination of skills: was computed by the mean of items 3, 4, 7, 10, 11. Cronbach's Alpha found to be $\alpha=0.54$ ($\alpha=0.54$ for men and $\alpha=0.69$ for women).

Learning structure: was computed by the mean of items 5, 6, 12, 13. Cronbach's Alpha found to be $\alpha=0.65$ ($\alpha=0.65$ for men and $\alpha=0.62$ for women).

Awareness to teachers' function was computed by the mean of items 14-19, as higher score indicating on higher awareness of the teacher to its function. The answers were on a Likert scale between 1-5 (1=not at all, 5= very much). Item 19 was a reversed item. Reliability analysis of Cronbach's Alpha found to be $\alpha=0.67$ ($\alpha=0.69$ for men, after removing item 16, and $\alpha=0.72$ for women). that is considered to be satisfactory reliability. It is important to mention that factor analysis results showed that item 14 was loaded on a different factor along with items 16-17 and therefore they were included in this factor since they represent its world of knowledge (reliability analysis confirmed it).

Awareness to teachers' function had three subscales:

Cognitive: was computed by the mean of items 14-15. Cronbach's Alpha found to be $\alpha=0.67$ ($\alpha=0.47$ for men and $\alpha=0.74$ for women).

Emotional: was computed by the mean of items 16-17. Cronbach's Alpha found to be $\alpha=0.77$ ($\alpha=0.76$ for men and $\alpha=0.78$ for women).

Social: was computed by the mean of items 18-19. Cronbach's Alpha found to be $\alpha=0.62$ ($\alpha=0.75$ for men and $\alpha=0.46$ for women).

Teachers' use of knowledge: In this case, it was not possible to compute a general variable representing teachers' use of knowledge due to unsatisfactory reliability. The answers were on a Likert scale between 1-5 (1=not at all, 5= very much). Items 21, 26, 28 were reversed items.

Teachers' use of knowledge had three subscales, as higher scores indicating on higher use of this kind of knowledge:

Use of self/personal knowledge: was computed by the mean of items 21-23. Cronbach's Alpha found to be $\alpha=0.87$ ($\alpha=0.96$ for men and $\alpha=0.81$ for women).

Professional knowledge: was computed by the mean of items 24-25. Cronbach's Alpha found to be $\alpha=0.86$ ($\alpha=0.80$ for men and $\alpha=0.89$ for women).

Environmental/school knowledge: was computed by the mean of items 26-27. Cronbach's Alpha found to be $\alpha=0.65$ ($\alpha=0.88$ for men and $\alpha=0.47$ for women).

Learning of teachers was computed by the mean of items 30-32, 34-35, as higher score indicating on higher influence of personal and environmental characteristics on the teacher's learning. The answers were on a Likert scale between 1-5 (1=not at all, 5= very much). Items 30, 34 were reversed items. Reliability analysis of Cronbach's Alpha found to be $\alpha=0.74$ ($\alpha=0.77$ for men and $\alpha=0.71$ for women) that is considered to be good reliability. It is important to mention that factor analysis results showed that item 35 was loaded on a different factor along with item 30 and therefore they were included in this factor since they represent its world of knowledge (reliability analysis confirmed it).

Opportunities to awareness of changing environment- environmental characteristic: was computed by the mean of items 36-37, as higher score indicating on higher perception of opportunities to awareness of changing environment, in the environmental characteristic (school climate and breaks at school). The answers were on a Likert scale between 1-5 (1=not at all, 5= very much). Reliability analysis of

Cronbach's Alpha found to be $\alpha=0.79$ ($\alpha=0.75$ for men and $\alpha=0.82$ for women) that is considered to be high reliability.

Barriers to awareness of changing environment: two separate items measured the barriers to awareness of changing environment. The first, item 39 measured the barrier of self-efficacy of the teacher and item 40 measured the barrier of fear. The answers were on a Likert scale between 1-5 (1=not at all, 5= very much).

Generally, it can be noticed that the results of the reliability analysis of Cronbach's Alpha coefficients among the separate samples of men and women are, in most cases, in accordance with the results in regard to the general sample.

In relation to the means of the research variables that will be presented in the next chapter, low agreement is between the values of (1-2), medium agreement around the value of (3) and high agreement is between the values of (4-5).

The next tool selected for the planned tests will be a test for the surveyed teachers - 90 people. It will include tasks related to the awareness and professional knowledge of teachers that they use in the didactic process of teaching subjects: Professional knowledge, Self-knowledge – personal, Professional activities, Awareness of applying knowledge, Barriers, Knowledge of colleagues and students, Knowledge of the environment and school. The selected tasks will be scored on a scale of 0 to 9 points. Statistical calculations will be made as well as their quality solutions will be interpreted. This test is part of the final testing of the planned procedure and indicate complete research. According to a post-positivist view of experimental research, measurements should be made before and after intervention. In this scenario, the researcher examines a theory and collects data to support or refute hypotheses. The data are collected using a test administered to the experimental group and the control group. And the information can be analyzed using statistical tools that are quantitative and / or qualitative, in order to examine the hypotheses of the study. The stages of an experimental research system in most cases are: Pre-test, treatment given to the experimental group only and post-test for completion of the study. (Creswell, 2014, pp. 48-97).

Another research tool will be a proprietary set of tasks covering the interpretation of material from the point of view of mixed analyzes. As a researcher, I designed tasks

that are an experimental independent variable (ZN2). They have a diverse character and structure. these are:

- Completely open tasks that meet the criteria of modern teaching and professional teacher knowledge that are necessary in the modern changing world.
- Open and closed tasks requiring knowledge, ingenuity, but also the use of known methods.
- Closed and open tasks, in which schematic activities are first used in the teaching and learning process and then other alternative solutions resulting from the teaching knowledge should be applied.
- The last type of tasks is completely closed tasks based on traditional solutions.

The proposed series of tasks for teachers will reveal real awareness, professional knowledge and the school's characteristics as their workplace. Changes in the form of task solutions will be shown, which will be evaluated not only in terms of ingenuity (modern education) or the scheme (traditional education), and therefore the quantitative and qualitative analysis.

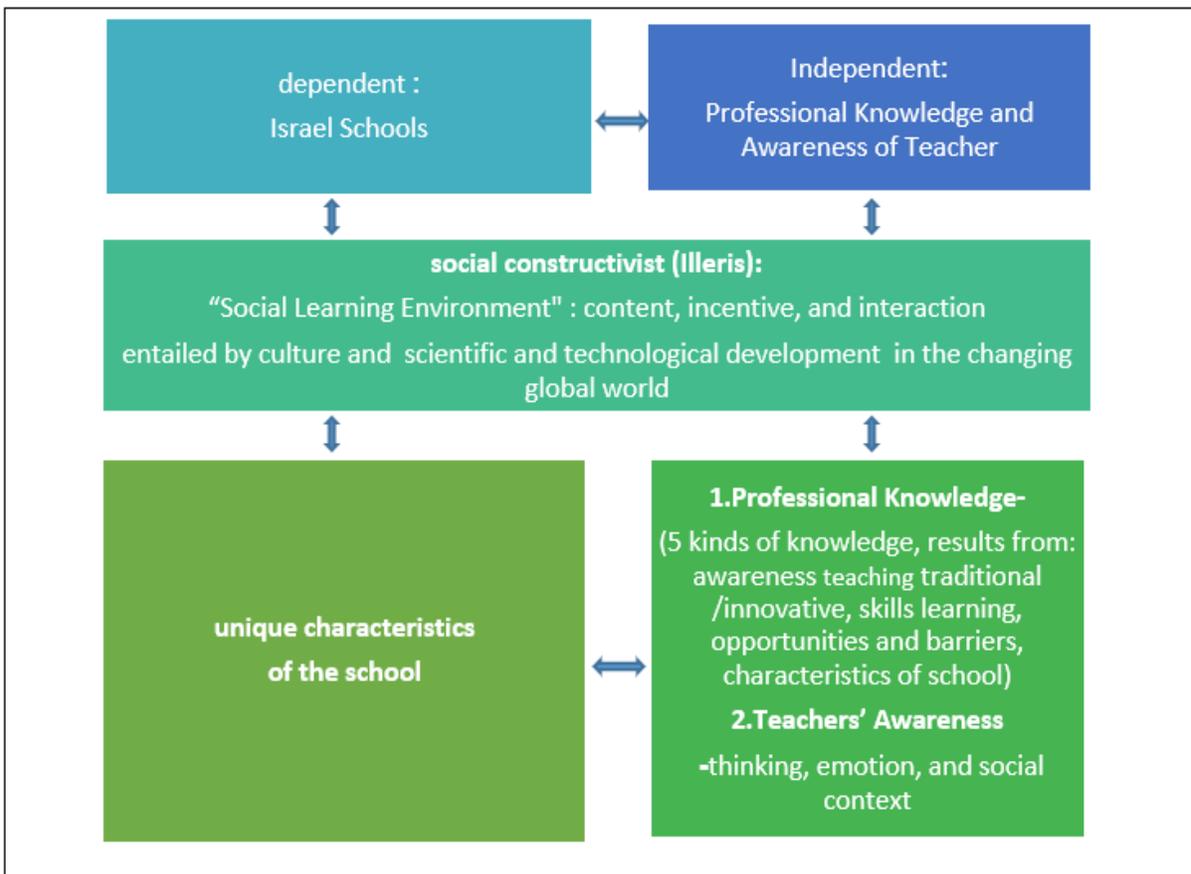
Qualitative tools: diagnostic verifications- interviews

In-depth open interviews with 10 teachers from the sample. The interviews will be semi-structured, five from the experimental group, and five from the control group. In interviews of this type, the main questions formulated in advance, but the sequence of their presentation is not predetermined, and it is possible that during the interview questions will added according to the context. Sometimes the answers of the interviewees lead to spontaneous questions. In addition, documents that include information about gender, age, education, employment experience, the type of school in which the teacher employed.

Interview is one of the most common and prominent ways in which we can try to understand human beings (Fontana & Frey, 2000, p. 645). The purpose of an in-depth interview is to understand the experience of other people and the meaning they attribute to this experience. The interview provides access to the cultural contexts of people's behavior and therefore provides researchers a way to understand the significance of this behavior. In-depth interview is similar to conversation, and the researcher focuses on a number of general topics to help the informants expose their story, its meaning, attitudes

and opinions. The researcher respects the way in which the constructor's structure and synthesize their responses without his intervention and intention (Shkedi, 2003, p. 69). The interviewer reflects the experience by reflecting on the experience and its organization, and the researcher tries to understand the use that people make in language (Seidman, 1991, pp. 7-14). Every word used by the interrogee is a microcosm of his consciousness (Vygotsky, 1987, pp. 236–237).

Figure 5: The research system



Source; own elaboration

4.7. Participants and research area

In the process of selecting participants for research, there are two types of samples: A non-probabilistic sampling based on a "non-random" sample of participants,

this sample also known as a deliberate sample, purposive and judgement sampling. In this type of sampling, the researcher purposely selects the participants for the sample and therefore, his judgment plays an important role in the design of the specimen. The intended choice of participants is due to the reason that it will produce good results, so there is always the risk of bias, however, it has advantages: This type of sampling is very convenient and relatively inexpensive.

However, there is a probabilistic sampling, based on random selection of participants. In this sample, each component in the population has an equal probability of entering the sample and the options are not dependent on each other, also, it gives each possible sample combination an equal probability of selection (Kothari, 1990, p. 59).

The selection of the research population will be in the first stage in a deliberate manner and includes 90 science and technology teachers in elementary schools teach in Jewish schools in the north region in the Israeli education system, men and women of different ages, with diverse work experience. The age of the study participants is over 18.

The reason for the selection of science and technology teachers in primary schools because This is a core discipline which appears in the Israeli Basic curriculum, a program that defines the content that students in the Israeli education system must know, applies to all students in Israel's primary education system and is a prerequisite for receiving state funding. In addition, there is a requirement to include teachers who trained in science teaching from the third grade. Science and technology are a field that invites innovative and modern teaching with emphasis on the application of constructivist approaches in teaching and learning processes, authentic and valuable learning for learners involved in learning processes. Research and collaborative skills and metacognitive thinking, integration of diverse learning environments and a variety of teaching methods, learning and evaluation, integration of technology in general and in education in primary schools in particular (Ministry of Education, 2016, pp. 36-40; AAAS, 1993). The roles of science and technology teachers are to guide students to review their work, to express their ideas and to ask questions, to take responsibility for their learning, to encourage collaboration in "learning communities" while integrating research skills (Crawford, 2000, pp. 916-937). They must experiment with and adopt a variety of teaching methods that will encourage the learner's internal motivation and enjoyment while reflecting (Palmer, 2009,

pp. 147-165). Share colleagues and combine teaching of diverse subjects with other disciplines (Crawford, 2000 pp. 916-937), these teachers must be willing to assimilate new initiatives in teaching and integrate online elements, while being aware of the benefits and limitations that technology can impart to teaching processes (Barak, Carson, & Zoller, 2007, pp. 1712-1716). All these factors are contained in the teacher's personal space (Clandinin, 2014, pp. 361-385) and are the outcome, to a greater or lesser extent, of the teachers' awareness (Illeris, 2003, p. 227). Teaching awareness is one of the most important factors of professionalism, regardless of the model of education (Kincheloe, 2007, pp. 1-60; Illeris, 2011, p. 46), especially, science and technology teachers who expected to teach modern teaching. It is therefore important to examine, understand and develop the awareness and professional knowledge of these teachers in Israeli schools.

The reason for the selection of teachers from the Jewish sector is that both innovative education and traditional education can see in a more accessible and broader way in Jewish schools in Israel, both because of physical conditions and because of the cultural aspect (Balikoff, 2014, pp. 10-20). Therefore, the expectation is that schools in the Jewish sector will have a higher awareness of teachers of the changing world. The selected teacher population is diverse and appropriate in its characteristics to the Israeli teacher population and therefore represents the teachers' population in Israel and the ability to generalize is not impaired.

In the second stage, the participants from the teacher population will choose a random choice as follows: 2-3 teachers from each school in order to enable a diversity of the participants' population on the one hand and to collect more information from teachers belonging to the same school. Teachers will be recruited by personal contact in a conversation, email or phone call. Teachers participating in the research will have the opportunity to use an awareness-learning model that will help them with instructional practice.

The Northern District is one of the six districts in the State of Israel. The other districts are Haifa, Tel Aviv, Central, Jerusalem, Settlements and South. The district is located in the northernmost part of the State of Israel and has a total area of 4,473 square kilometers. The district includes 94 municipalities, 47% of the Jewish sector and 53% of the non-Jewish sector, which includes the Arab, Druze, Bedouin and Circassian sectors.

There are 288 elementary schools in the Jewish sector out of 410 elementary schools in the Northern District, In the primary schools of the Jewish sector about 400 teachers teach science and technology. These schools include 53 state religious schools, where Jewish subjects are taught in an increasing manner. In addition to the general subjects of study, the teachers in these schools belong to the religious sector. Most of the schools in the Northern District are located in a rural area with a green landscape and physical spaces.

The size of the sample determines to cover about 25% of the population of science and technology teachers who teach in Jewish elementary schools in the north region.

4.8. Ethical Considerations

In considering the research methods, an evaluation of ethics, an examination of the research considerations and risks that may be affected by the research and ways to remove or minimize them were undertaken to ensure maximal benefit and the creation of general knowledge that is expected to benefit participants and society as a whole.

-Potential risk can be on a personal level, teachers may feel less professional after exposed to model questions of awareness and professional knowledge, also, they may be afraid that the information they disclose will be publicized. This risk can be addressed by training and open discussion and personal assistance to participants in the exposure and learning process of the model, as well as raising teachers' awareness of the improvement in their professional knowledge, and to define and show teachers that the information they reveal about themselves is anonymous.

-Potential risk to the researcher's interests may be the lack of cooperation of the participants for reasons of lack of time or lack of motivation. This risk can be dealt with by coordinating interviews and questionnaires in the teachers' leisure time, while creating a personal and pleasant connection with the participants. The researcher will try to brief and debrief participants through personal conversation, practical experience, professional guidance and available communication, expressing caring and reliability.

-Anonymity: The identity of the interrogees will protect and confidential in order to protect the interviewees from embarrassment or harm in the light of the information collected (except in cases where there was another agreement with the interrogees).

-Confidentiality: Informing participants about the research content and making sure that they confirm it in writing participants willingly understand the research characteristics and risks involved in the process.

-Non-exposure to danger: the researcher will ensure that participants not exposed to greater risks than expected profit from the study.

-There will be an authorization process for the research, Respect for the interrogees. Trust in the findings will presented while adhering to the findings in the report and to what the data showed. Inform participants in advance about the possibility of withdrawing at any time.

-Manual files: The data will be secured in a personal place, in a personal laptop with coded password to which only the researcher has access.

5. Analysis of own research results

5.1 Results of the quantitative research - sociographic data of the respondents.

Experimental research requires a lot of sophistication from the researcher and involves a large amount of work. Changes in science and educational practices have not weakened the aspirations of many teachers and educators for innovative research to learn new methodological solutions. The arguments for experimental research confirmed the course of the research process, because they interact, as K. J. Zmidts adds to the course and results of experiment in which the creativity of examined teachers is revealed. As K. Krueger and N. Pfaff write, “researchers who combined theory and practice in solving specific problems, tasks encountered in their daily activities [...], which aims to interfere in pedagogical practice, change it already at the stage of scientific research, not only after the completed research process”. This promotes the openness of forms of research implementation, ensuring equal cooperation and pragmatic.

Diversification of the undertaken activities, at the same time indicating a complex and dynamic character, referring to the interaction of matched variables. Therefore, the first stage will include the results of diagnostic tests of the author’s questionnaire. The answers contained in it were answered by deliberately selected people for research and included 90 Jewish teachers (50% men and 50% women) that teach in Jewish elementary schools of the Israeli education system in Northern Israel. All of the teachers have certification of training in science and technology, males (50%) and females (50%), of various age groups (above 18 years), with various work experience. Table 2 presents the socio-demographic characteristics of the sample by gender.

Table 2: Socio-demographic characteristics of the sample

<i>Characteristic</i>		<i>General sample</i>		<i>Females</i>		<i>Males</i>	
		<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
		Seniority in teaching	1-3 years -young teacher	17	%18.9	9	20.0%
	4-8 -young teacher	27	%30.0	14	31.1%	13	28.9%
	8-15 -older teacher	24	%26.7	11	24.4%	13	28.9%

	Above 15 -older teacher	22	%24.4	11	%24.4	11	%24.4
Education	B.A science & technology	80	%88.9	41	91.1%	39	86.7%
	M.A science & technology	3	%3.3	1	2.2%	2	4.4%
	M.A other field	7	%7.8	3	6.7%	4	8.9%
School affiliation	state school	76	%84.4	39	86.7%	37	82.2%
	Religious state school	14	%15.6	6	13.3%	8	17.8%
Grades	1-2	2	%2.2	1	%2.2	1	%2.2
	3-6	44	%48.9	22	%48.9	22	%48.9
	1-6	37	%41.1	16	%35.6	21	46.7%
	3-8	7	%7.8	6	%13.3	1	2.2%
Globalization training	Yes	14	%15.6	8	17.8%	6	13.3%
	No	76	%84.4	37	82.2%	39	86.7%

Source; own study - General analysis

Teachers with a Seniority in teaching of 1 to 8 years have been named a group of young teachers. Such a definition is necessary for conducting further interpretations and calculations. A similar procedure was carried out with a group of 8 to above 15 years of Seniority in teaching, they were called older teachers.

According to the data presented in the table, it can be seen that among the study participants: 44 young teachers with a seniority of 1-8 years, including 23 women and 21 men and 46 adult teachers with seniority of 8-15 years, including 22 women and 24 men. In terms of "Education", all teachers have a bachelor's degree in science and technology, 3 teachers also have a master's degree in science and technology, they include one woman and two men, and also 7 teachers with a master's degree in other fields, they include 3 women and 4 men. In terms of "School affiliation", 76 teachers from state schools, including 39 women and 37 men, as well as 14 teachers from religious state schools, including 6 women and 8 men. In terms of "Grades", 81 teachers, as a majority group, teach in grades 1-6, including 38 women and 43 men. 2 teachers teach in grades 1-2, including one woman and one man, and, 7 teachers teach in grades 3-8, including 6 women and one man. In terms of "Globalization training", only 14 teachers were trained, including 8 women and 6 men. 76 teachers, as a majority group, including 37 women and 39 men, were not trained for the effects of globalization

5.2. Verification of the diagnosis

In this study, quantitative and qualitative research tools are integrated. The aim of the combined research method is to collect statistical quantitative data and qualitative data in order to cover all the examined components presented in the research questions. In the first stage, a quantitative questionnaire is performed, which is an introduction to lead the experiment. The calculations, the description of the results, and examples of solutions will be described by young and old teachers - women, and young and old teachers - men.

The number of participants in the quantitative study will be 90 teachers (from selected schools in Israel). The data on the participants will be collected from the author's questionnaire that contains the data sheet, in which information is obtained on the sociological data and documentation that characterizes the main subjects examined.

Table 2 presents the distribution of means of items 1-13 that relate to the subject of the teachers' awareness to traditional and innovative teaching among teachers in Israeli schools. Analysis of research results was started by discussing diagnostic data on teacher awareness. It influences the teacher's knowledge, traditional and innovative functioning in a specific place and time of the school environment. The following tables will present the results of the tests carried out.

Table 3: Characteristics of the awareness to traditional/innovative teaching on a scale of 1-5 (N=90)

	<i>General</i>	<i>Women</i>		<i>Men</i>	
	<i>sample</i>	<i>young</i>	<i>older</i>	<i>young</i>	<i>older</i>
Statement	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
I combine one or more of the following learning types: problem-based learning, inquiry learning, reflective learning, lifelong learning	2.59 (0.59)	2.69 (0.70)	2.72 (0.63)	2.66 (0.48)	2.29 (0.46)
	t= 1.97	t= -0.15		t= 2.65*	

I challenge my students to learn independently and think critically	3.06 (0.23) t= 2.34*	3.13 (0.34) t= 0.41	3.09 (0.29)	3.00 (0.00)	3.00 (0.00)
I combine thinking skills in explicit and direct teaching in different content areas in order to create new knowledge	2.57 (0.56) t= 1.70	2.65 (0.64) t= -0.16	2.68 (0.56)	2.66 (0.48) t= 2.65*	2.29 (0.46)
I teach social skills, leadership and multicultural dialogue between people and different groups	3.20 (0.42) t= 0.00	3.26 (0.54) t= 0.91	3.13 (0.35)	3.09 (0.30) t= -1.65	3.29 (0.46)
I teach a flexible study structure of time and place beyond the limits of the lesson and class	2.12 (0.68) t= 0.76	2.26 (0.91) t= 0.70	2.09 (0.68)	2.00 (0.54) t= -0.77	2.12 (0.53)
Most of my time in my classes is devoted to active learning processes, experiences and self-tasks	2.33 (0.65) t= 2.66**	2.60 (0.89) t= 0.84	2.40 (0.66)	2.14 (0.35) t= -0.18	2.16 (0.48)
Integrating technology into the classroom makes it difficult for me to plan the lesson, the location of the lesson, and the adaptation of the teaching method	3.62 (0.66) t= -2.27*	3.30 (0.92) t= -1.38	3.63 (0.65)	3.76 (0.43) t= -0.23	3.79 (0.41)
I come from a background where the teacher gives the best information to the students and they are not expected to respond to it	3.50 (0.76) t= -3.01**	3.17 (0.98) t= -0.67	3.36 (0.90)	3.71 (0.46) t= -0.26	3.75 (0.44)
In my experience, the teacher is the main active factor in the teaching-	4.54 (0.82)	4.26 (1.13)	4.40 (0.95)	4.85 (0.35)	4.66 (0.48)

learning processes

	t= -2.50*	t= -0.47	t= 1.48		
I prefer students to memorize knowledge	4.63 (0.56)	4.47 (0.79)	4.72 (0.45)	4.76 (0.43)	4.58 (0.50)
	t= -0.55	t= -1.28	t= 1.26		
I teach according to a curriculum and work plan prepared in advance	4.66 (0.51)	4.56 (0.58)	4.63 (0.58)	4.95 (0.21)	4.54 (0.50)
	t= -1.22	t= -0.40	t= 3.42**		
Discipline and regular classroom sitting are important for students to learn	4.42 (0.76)	4.26 (1.00)	4.36 (0.90)	4.71 (0.46)	4.37 (0.49)
	t= -1.38	t= -0.35	t= 2.36*		
In my experience, I prefer that the students work only in the classroom and within the lesson	4.36 (0.72)	4.43 (0.66)	4.13 (0.77)	4.57 (0.59)	4.33 (0.81)
	t= -1.01	t= 1.39	t= 1.10		

$p < .05^*$, $p < .01^{**}$

Source; own study - General analysis

The statistics show that in relation to the category of traditional teaching teachers apparently express high agreement with the statements indicating that they teach according to a curriculum and work plan prepared in advance ($M = 4.66$); and prefer students to memorize knowledge ($M = 4.63$); as well as that in their experience, the teacher is the main active factor in the teaching-learning processes ($M = 4.54$) (items 9-11). Additionally, teachers apparently express high agreement with the statements that discipline and regular classroom sitting are important for students to learn ($M = 4.42$) and that in their experience, teachers prefer that the students work only in the classroom and within the lesson ($M = 4.36$) (items 12-13). Additionally, there is medium-high agreement with the statements that integrating technology into the classroom makes it difficult for them to plan the lesson, the location and the adaptation of the teaching method ($M = 3.62$). As well as medium-high agreement that teachers come from a

background where the teacher gives the best information to the students and they are not expected to respond to it ($M = 3.50$) (items 7-8).

The examination of these statistics in the category of traditional teaching by gender shows that women teachers express significantly higher agreement with the statements that they challenge students to learn independently and think critically ($t(88) = 2.34, p < 0.05$), and that most of their time in my classes is devoted to active learning processes, experiences and self-tasks ($t(88) = 2.66, p < 0.05$) in comparison to male teachers.

However, men teachers express significantly higher agreement with the statements that integrating technology into the classroom makes it difficult for them to plan the lesson ($t(88) = -2.27, p < 0.05$), that they come from a background where the teacher gives the best information to the students ($t(88) = -3.01, p < 0.01$), and that the teacher is the main active factor in the teaching-learning processes ($t(88) = -2.50, p < 0.05$) in comparison to female teachers.

The examination of these statistics in the category of traditional teaching by gender and seniority shows that among women, there were no significant differences between older and younger teachers in these attitudes. However, it can be noticed that in most cases older teachers tend to express higher agreement with traditional teaching in comparison to younger teachers. Among men, in most cases younger teachers tend to express higher agreement with traditional teaching in comparison to older teachers. Younger male teachers express significantly higher agreement with the statements that they teach according to a curriculum ($t(43) = 3.42, p < 0.01$) and that discipline and regular classroom sitting are important for students to learn ($t(43) = 2.36, p < 0.05$).

In relation to the category of innovative teaching, teachers apparently express medium agreement with the statements indicating that they teach social skills, leadership and multicultural dialogue between people and different groups ($M = 3.20$) and that they challenge the students to learn independently and think critically ($M = 3.06$). Additionally, there is medium agreement with that they combine one or more of the following learning types: problem-based learning, inquiry learning, reflective learning, lifelong learning ($M = 2.59$) as well as thinking skills in explicit and direct teaching in

different content areas in order to create new knowledge ($M = 2.57$) (items 1-4). Finally, teachers apparently express low agreement with that they teach a flexible study structure of time and place beyond the limits of the lesson and class ($M = 2.12$) and low agreement with the fact that most of my time in their classes is devoted to active learning processes, experiences and self-tasks ($M = 2.33$).

In relation to the means of the research variables, low agreement is between the values of (1-2), medium agreement around the value of (3) and high agreement is between the values of (4-5).

The examination of these statistics in the category of innovative teaching by gender and seniority shows that among women, there were no significant differences between older and younger teachers in these attitudes. However, it can be noticed that in most cases younger teachers tend to express mildly higher agreement with innovative teaching in comparison to older teachers. Among men, in two cases younger teachers tend to express significantly higher agreement with innovative teaching in comparison to older teachers: that they combine one or more learning types ($t(43) = 2.65, p < 0.05$), as well as thinking skills in explicit and direct teaching ($t(43) = 2.65, p < 0.05$). While in all other items, the agreement rate is similar among younger and older male teachers with no significant differences.

As a result, all the factors examined are irrelevant according to the lack of significance t at the selected level p . The implications of globalization are expressed in the "economization" of educational thinking and action.

In recent years, education in Israel and around the world has been perceived as an economic resource designed to improve competitiveness in the global economy. Success in international achievement tests (Pisa, Tims, etc.) is becoming the central goal of the education system, with an emphasis on core economic studies and strengthening national content at the expense of humanistic and artistic content (Hanin, 2007, pp. 36-39). On the other hand, it is important to educate young people so that they can manage themselves and in school and in life (Aloni, 2004, pp. 41-51). For this purpose, the awareness and education of the teacher.

Modern changes fundamentally alter teachers' learning and personal space and naturally affect teachers' awareness. The global reality requires the creation of

collaborative knowledge. The teacher is required to be an active member of a professional knowledge community in his professional way of life, to open his work to peer feedback and training processes, and to utilize current and global professional knowledge resources (Sergiovanni, 1998 pp. 576-595). Access to social knowledge creates a multicultural discourse between different people and groups, a fact that emphasizes the need for teacher awareness of language and the cultural context (Shner, 2010, pp. 17-44).

Awareness of issues such as open identity and hidden identity, active presence and passive presence, the consciousness of the learning space, time and structure of the lesson, an online work routine and the ability to manage time (Shor & Freire, 1990, pp. 44), This awareness will help teachers understand their role and change the traditional classic paradigms they are captured in order to make a difference and integrate. The next section examines the extent to which globalization factors influence awareness of teachers to their functioning with emphasis on cognitive, emotional and social in traditional and innovative teaching in a changing environment.

Table 3: Characteristics of awareness to traditional/innovative functions among teachers on a scale of 1-5 (N=90)

Statement	General sample	Women		Men	
	<i>M (SD)</i>	<i>young</i> <i>M (SD)</i>	<i>older</i> <i>M (SD)</i>	<i>young</i> <i>M (SD)</i>	<i>older</i> <i>M (SD)</i>
My function as a teacher is primarily to mediate, shape and assist the student in his or her learning process	2.17 (0.71)	2.21 (0.90)	2.27 (0.88)	2.23 (0.62)	2.00 (0.29)
	t= 0.88	t= -0.20		t= 1.66	
I teach my students to reflect (Thinking about thinking) in the learning process	2.73 (0.59)	2.69 (0.70)	2.68 (0.71)	2.76 (0.43)	2.79 (0.50)
	t= -0.70	t= 0.06		t= -0.20	

I prepare students for learning tasks according to different intelligences	1.98 (0.71)	1.91 (0.73)	2.09 (0.75)	2.04 (0.80)	1.91 (0.58)
	t= 0.14	t= -0.80		t= 0.63	
In my opinion, the correct approach to teaching a student new knowledge is to base him on previous knowledge that includes his feelings, experiences and beliefs	2.27 (0.65)	2.13 (0.62)	2.40 (0.79)	2.47 (0.67)	2.12 (0.44)
	t= -0.16	t= -1.30		t= 2.07*	
I am an active member of the professional knowledge community in my professional way of life, open my work to feedback from colleagues and to the training processes and use current and global professional knowledge resources	2.77 (0.53)	2.82 (0.57)	2.68 (0.56)	2.80 (0.60)	2.79 (0.41)
	t= -0.39	t= 0.84		t= 0.11	
In my classes, I do not deal much with social, cultural, economic, and technological content	4.28 (0.52)	4.39 (0.49)	4.18 (0.50)	4.33 (0.65)	4.25 (0.44)
	t= 0.00	t= 1.40		t= 0.50	

p<0.05*

Source; own study - General analysis

The statistics show that in relation to the awareness of the cognitive function of the teacher, teachers apparently express relatively low agreement with that their function as teachers is primarily to mediate, shape and assist the student in his or her learning process (M = 2.21). In addition, a medium agreement that they teach the students to reflect (thinking about thinking) in the learning process (M = 2.73).

In relation to the awareness of the emotional function of the teacher, teachers apparently express relatively low agreement that the correct approach to teaching a student new

knowledge is to base him on previous knowledge that includes his feelings, experiences and beliefs ($M = 2.27$). As well as disagreement that teachers prepare students for learning tasks according to different intelligences ($M = 1.98$).

In relation to the awareness of the social function of the teacher, teachers apparently express relatively high that they do not deal much with social, cultural, economic, and technological content ($M = 4.28$). Additionally, there is a medium agreement with the statement they are active members of the professional knowledge community in their professional way of life, open their work to feedback from colleagues and to the training processes and use current and global professional knowledge resources ($M = 2.77$).

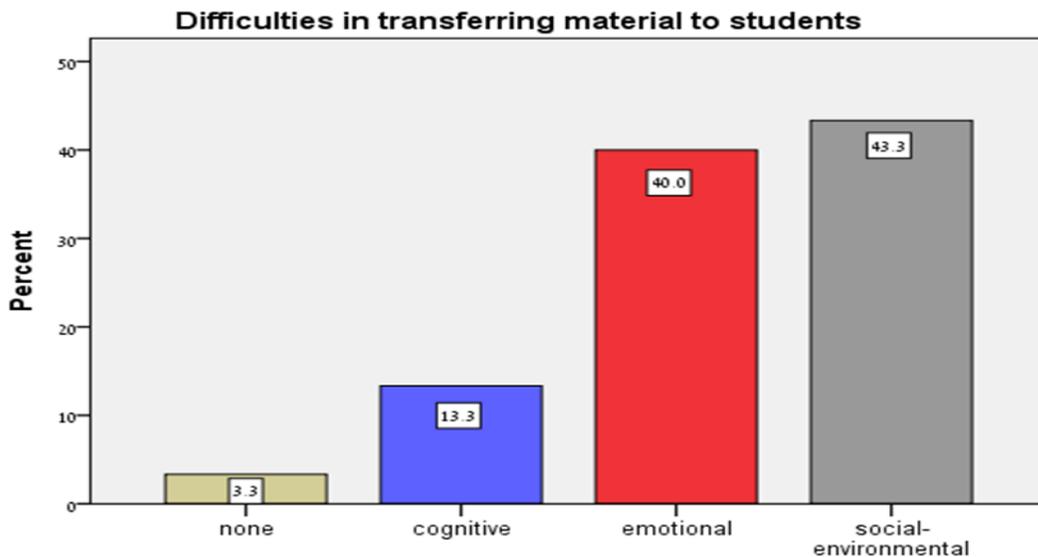
The examination of these statistics in the category of traditional/innovative functions among teachers by gender shows that there were no significant differences between male and female teachers in these attitudes. The examination of these statistics in the category of traditional/innovative functions among teachers by gender and seniority shows that among women, there were no significant differences between older and younger teachers in these attitudes. It can be noticed that in most cases there were similar findings among younger and older teachers. However, younger women teachers tend to express mildly higher awareness of the social function of the teacher in comparison to older teachers. Older women teachers tend to express mildly higher awareness of the emotional function of the teacher in comparison to younger teachers.

Among men, in most cases there were similar findings among younger and older teachers. However, younger men teachers tend to express higher awareness of the emotional function of the teacher in comparison to older teachers. This in regard to the item “the correct approach to teaching a student new knowledge is to base him on previous knowledge that includes his feelings, experiences and beliefs”: younger men teachers express significantly higher awareness in comparison to older teachers. As stated, regarding all other items, the agreement rate is similar among younger and older male teachers with no significant differences. As a result, the obtained numerical values in Table 3 proved to be insignificant. The exception is the statement regarding the opinion of the male teachers surveyed that teaching new knowledge of the student is based on previous knowledge, his feelings, experience and beliefs ($t(43) = 2.07, p < 0.05$).

As a result, all the factors examined are irrelevant according to the lack of significance t at the selected level p.

This section included open questions as well. The first question: "From your experience so far, what difficulties do you have in transferring material to students? What difficulties do students have in understanding the material? Difficulty in acquiring new knowledge, difficulty in using new knowledge?" Chart 1 presents the distribution of answers that were categorized by quantitative analysis.

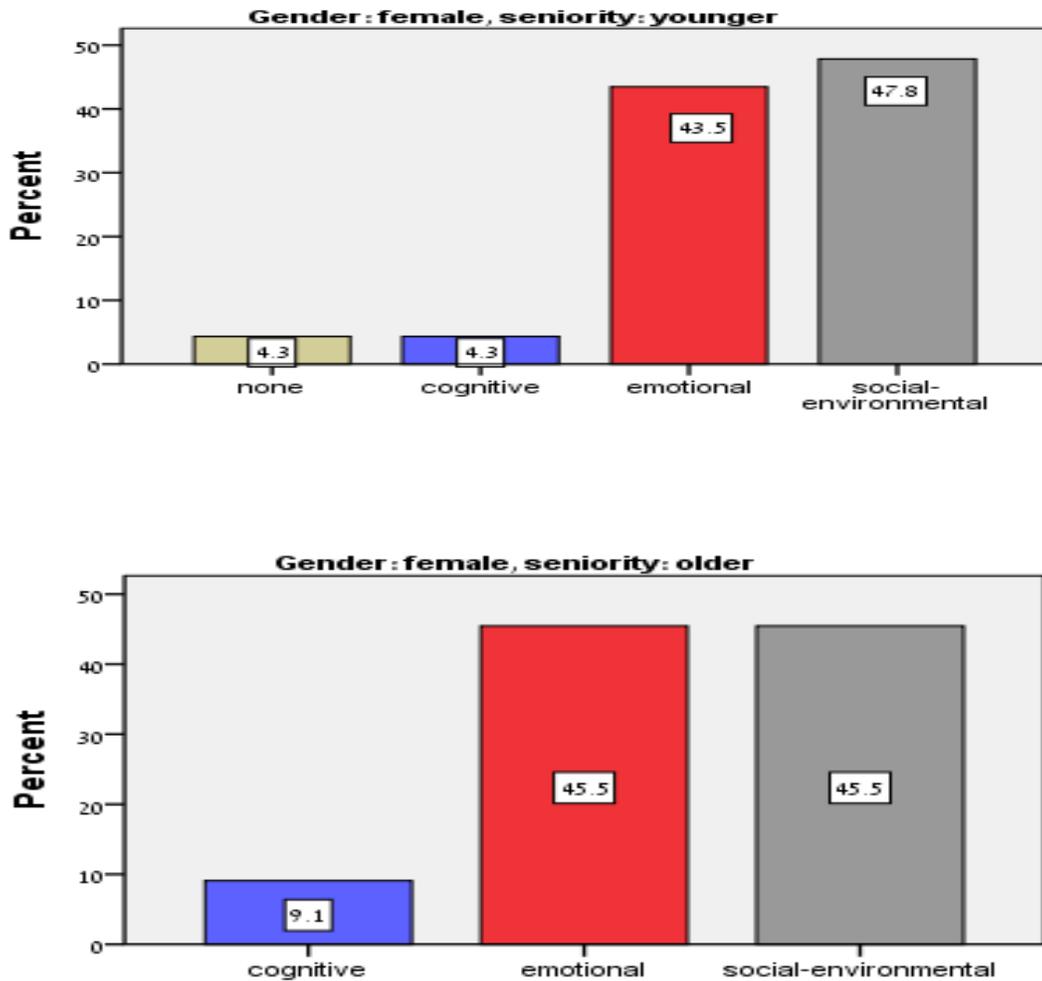
chart 1: Distribution of difficulties in transferring material to students



Source; own study - General analysis

Chart one shows that approximately 43% of the teachers (46.7% among women and 40% among men) report on social-environmental difficulties and 40% of the teachers (44.4% among women and 35.6% among men) report on emotional difficulties. The minority -%13 of the teacher (6.7% among women and 20% among men) report on cognitive difficulties in transferring material to students. Charts 2-3 below present detailed analysis of these statistics for young and older teachers among women, and young and old teachers among men.

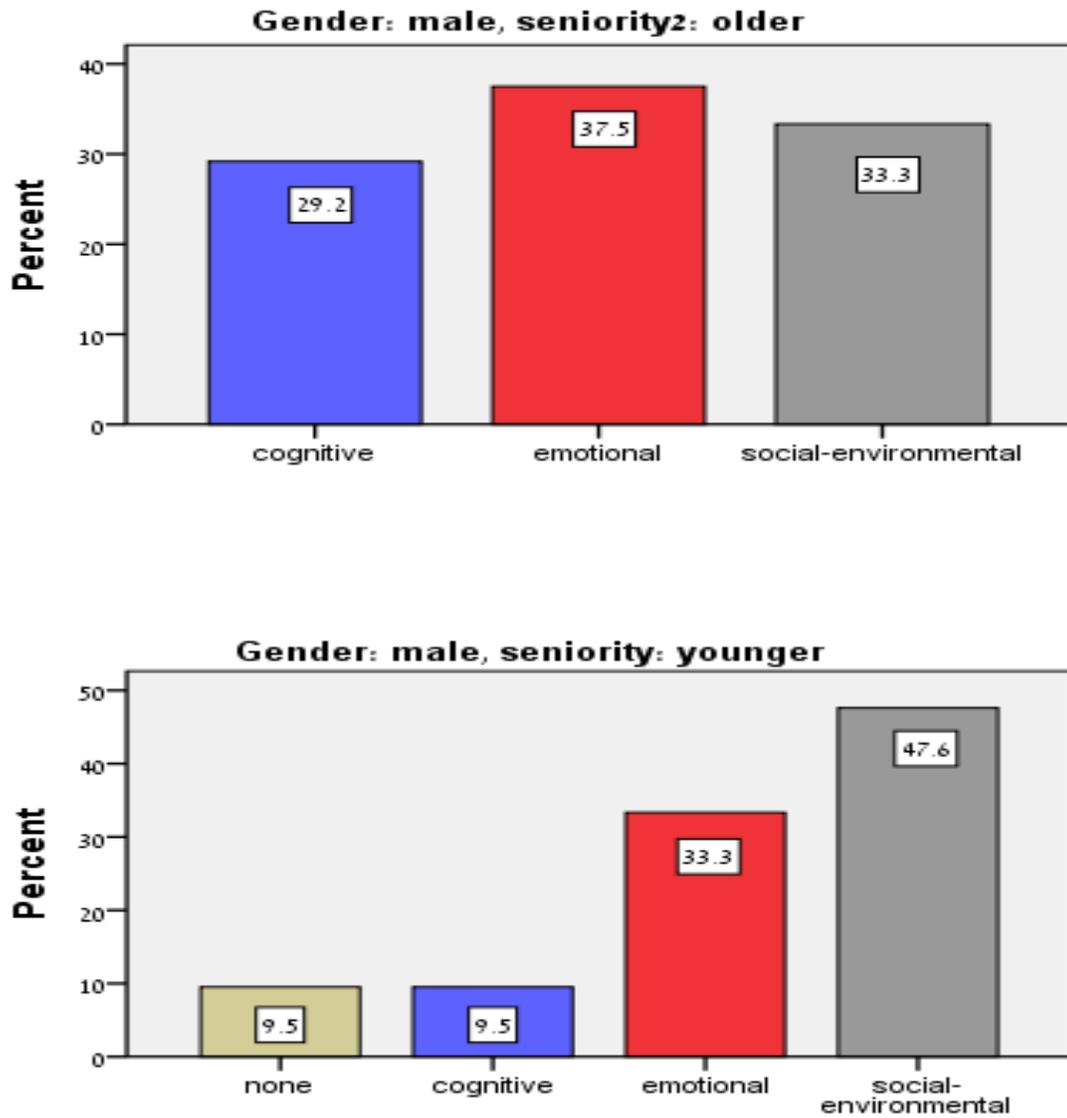
Chart 2: Distribution of difficulties in transferring material to students among female teachers



Source; own study - General analysis

The statistics regarding the female teachers indicate that older teachers report on higher rates of cognitive difficulties in transferring material to students (9.1%) in comparison to younger teachers (4.3%). The rates of social-environmental and emotional difficulties are quite similar among younger (43% -47%) and older female teachers (45.5%).

Chart 3: Distribution of difficulties in transferring material to students among male teachers

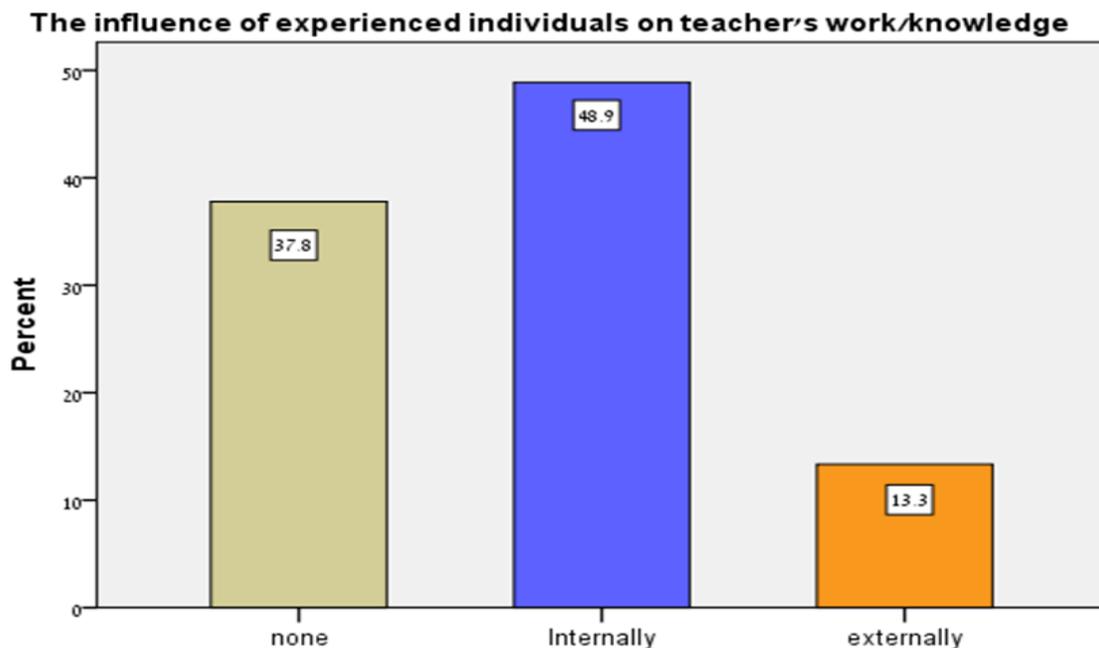


Source; own study - General analysis

The statistics regarding the male teachers indicate that older teachers report on significantly higher rates of cognitive difficulties in transferring material to students (29.2%) in comparison to younger teachers (9.5%). However, older teachers report on

lower social-environmental difficulties (33.3%) in comparison to younger teachers (47.6%). The rates of emotional difficulties are quite similar among younger (33.3%) and older male teachers (37.5%). The next open question: "From your experience so far, how experienced individuals have been able to influence your work and knowledge?" Chart 4 presents the distribution of answers that were categorized by quantitative analysis.

Chart 4: Distribution of the influence of experienced individuals

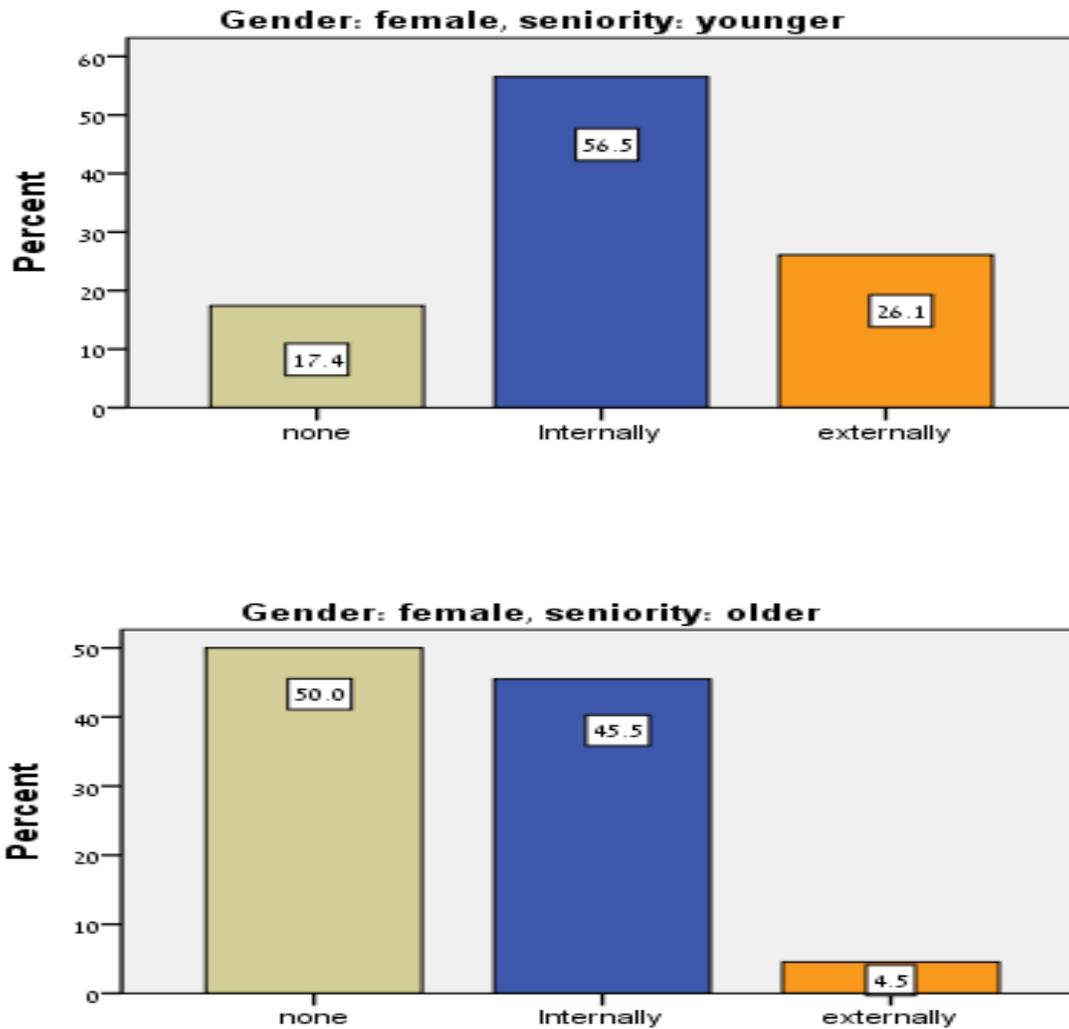


Source; own study - General analysis

Chart 4 shows that most of the teachers (49%) (51.1% among women and 46.7% among men) report that experienced individuals have been able to influence their work and knowledge internally (inter-school influence), while only 13% of the teachers (15.6% among women and 11.1% among men) report on external influence. Approximately 43% of the teachers (33.3% among women and 42.2% among men) report on no such influence.

Charts 5-6 below present detailed analysis of these statistics for young and older teachers among women, and young and old teachers among men.

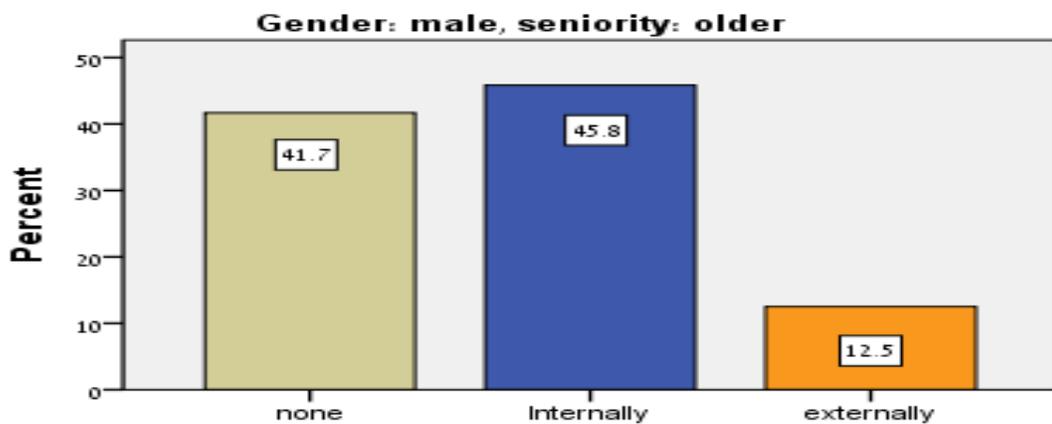
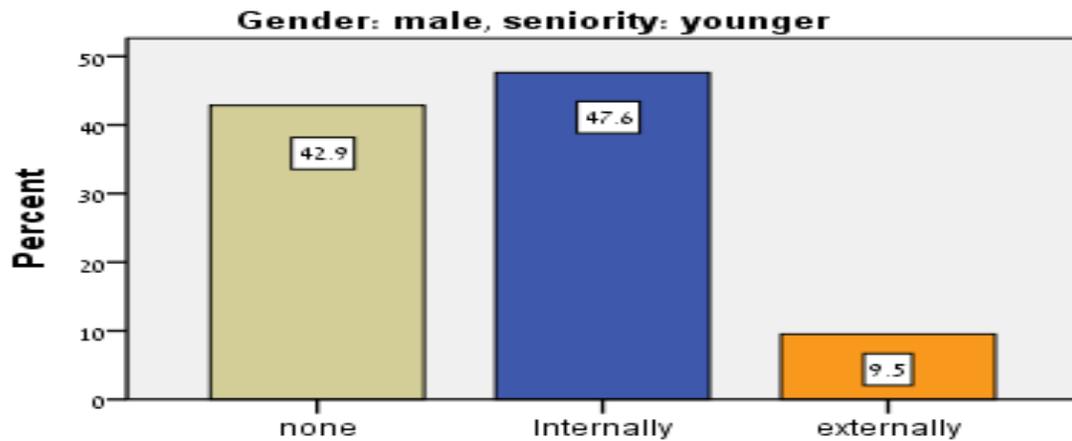
Chart 5: Distribution of the influence of experienced individuals among females



Source; own study - General analysis

The statistics regarding the female teachers indicate that older teachers report on significantly higher rates of no influence of experienced individuals on their work and knowledge (50%) in comparison to younger teachers (17.4%). Additionally, older teachers report on lower external (4.5%) as well as internal influence (45.5%) in comparison to external (26.1%) and internal influence (56.5%) among younger teachers.

Chart 6: Distribution of the influence of experienced individuals among males

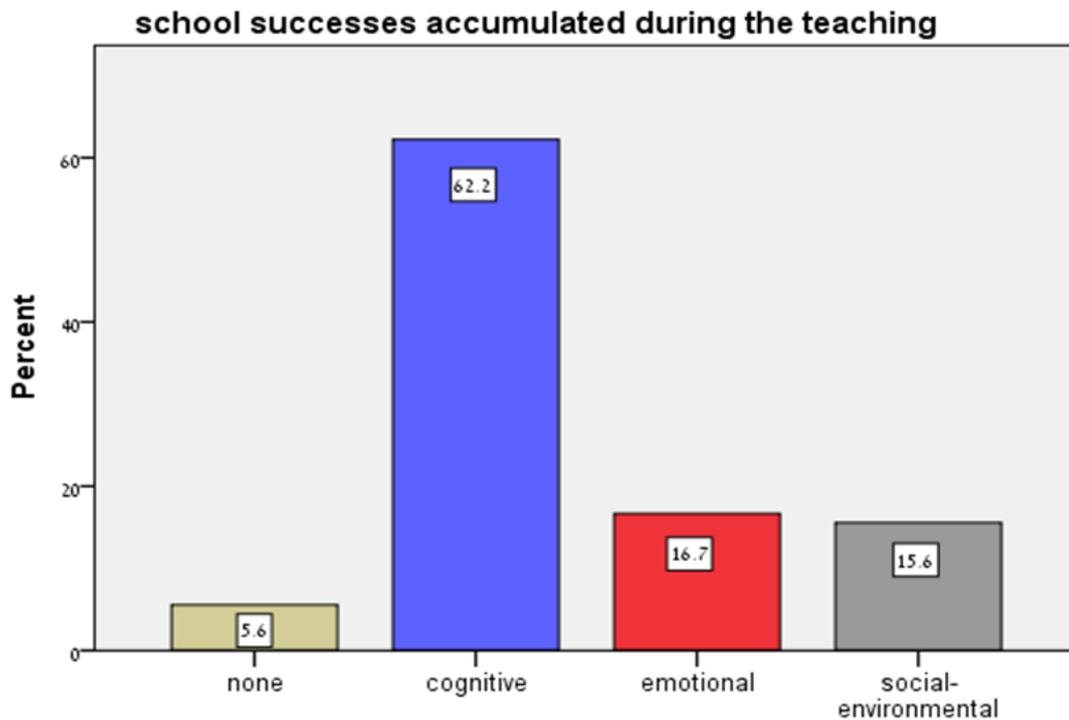


Source; own study - General analysis

The statistics regarding the male teachers indicate that older (41.7%) and younger teachers (42.9%) report on similar rates of no influence of experienced individuals on their work and knowledge. Older (45.8%) and younger teachers (47.6%) report on similar rates of internal influence of experienced individuals on their work and knowledge. In addition, older (12.5%) and younger teachers (9.5%) report on similar rates of external influence of experienced individuals on their work and knowledge.

The next open question: "From your experience so far, what school successes (if any) have you accumulated during your teaching? How did they affect you and your work?". Chart 7 presents the distribution of answers that were categorized by quantitative analysis.

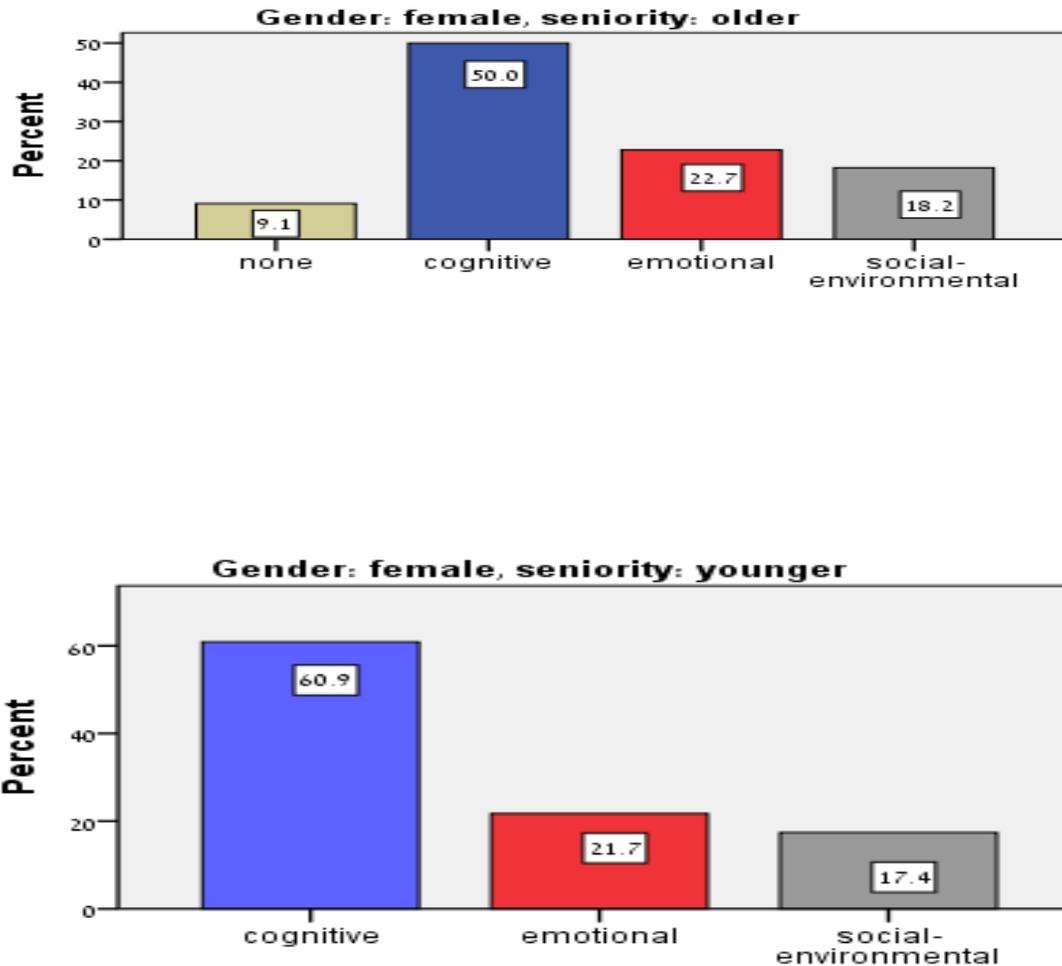
Chart 7: Distribution of the school successes of teachers



Source; own study - General analysis

Chart 7 shows that most of the teachers (62%) (55.6% among women and 68.9% among men) report on school successes in the cognitive field, approximately 17% of the teachers report on school successes in the emotional field (21.7% among young women and 22.7% among older women; 9.5% among younger men and 12.5% among older men). In addition, 15% more on the social-environmental field (17.4% among young women and 18.2% among older women; 9.5% among younger men and 16.7% among older men). Charts 8-9 below present detailed analysis of these statistics for young and older teachers among women, and young and old teachers among men.

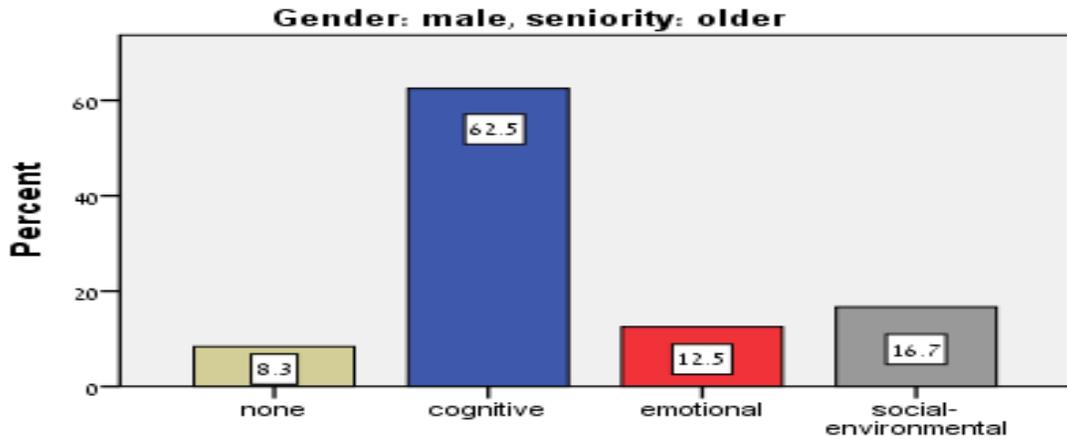
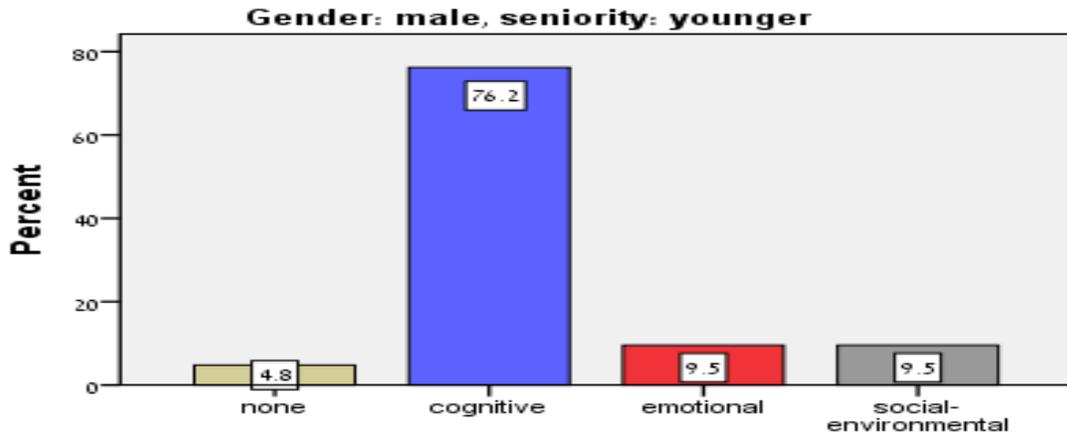
Chart 8: Distribution of the school successes of female teachers



Source; own study - General analysis

The statistics regarding the female teachers indicate that younger teachers report on relatively higher rates of school successes in the cognitive field (60.9%) in comparison to older teachers (50%). The rates of school successes in the emotional (21%-22%) and social-environmental fields (17%-18%) were similar.

Chart 9: Distribution of the school successes of male teachers



Source; own study - General analysis

The statistics regarding the male teachers indicate that younger teachers report on relatively higher rates of school successes in the cognitive field (76.2%) in comparison to older teachers (62.5%). However, older teachers report on relatively higher rates of school successes in the social-environmental field (16.7%) in comparison to younger teachers (9.5%). The rates of school successes in the emotional and field were quite similar (9%-12.5%).

Knowledge is a subjective human need. It is dynamic and develops over time. It is slowly and steadily built as a mosaic of different types while simultaneously using

thinking, emotions and interaction with the environment, and includes within it the unique characteristics of the social and cultural environment. Therefore, knowledge is part of human awareness, the way we organize knowledge in our consciousness affects the way we learn new knowledge, our previous knowledge may promote or disrupt our learning.

Awareness is one of the most important factors affecting the application and use of knowledge in familiar and unfamiliar situations. The greater the awareness of the teacher, the greater the knowledge will be used in diverse and interesting ways. Therefore, the complexity of the concept of knowledge leads to the need to understand the teaching knowledge and examine its different types.

The following section examines the use of five different types of knowledge: knowledge about themselves, personal knowledge, professional knowledge, environmental knowledge that includes the internal and external school environment and the knowledge of others, with emphasis on modern and traditional functioning as teachers in a school in Israel. The types of knowledge focus on the teacher's inner and outer worlds, the teacher's awareness linking the inner knowledge with the external knowledge.

The information about the different types of teachers' knowledge will serve as a basis for identifying and mapping the types of knowledge that teachers are using in their daily work in Israeli schools, to analyze teachers' awareness of their types of knowledge and how they use their knowledge in practical work at school while taking into consideration the environmental influences and the changing reality. Developing teachers' awareness of their types of knowledge may be useful to them in planning the teaching, as well as recognizing the growing need in the modern world to adapt and improve teacher learning. Table 4 presents the distribution of means of the questionnaire knowledge items.

Table 4: Characteristics of the use of different kinds of knowledge on a scale of 1-5 (N=90)

<i>General sample</i>	<i>Women</i>		<i>Men</i>	
	<i>younger</i>	<i>older</i>	<i>younger</i>	<i>older</i>

<i>Knowledge</i>	<i>M (SD)</i>				
Self-knowledge					
I have theories about the learning process that affect my teaching	4.65 (0.67)	4.60 (0.89)	4.45 (0.80)	4.76 (0.43)	4.79 (0.41)
	t= -1.74	t= 0.60		t= -0.23	
My teaching approach is shaped by past experiences from the teachers who taught me	4.14 (0.64)	3.95 (0.76)	4.18 (0.85)	4.23 (0.43)	4.20 (0.41)
	t= -1.14	t= -0.93		t= 0.23	
Personal knowledge					
I think research is important in my teaching	2.88 (0.54)	2.95 (0.47)	2.90 (0.68)	2.85 (0.57)	2.83 (0.48)
	t= 0.76	t= 0.27		t= 0.15	
In teaching work, I use pedagogical principles and teaching techniques that are not limited to a particular content area	2.84 (0.53)	3.04 (0.70)	2.77 (0.52)	2.76 (0.43)	2.79 (0.41)
	t= 1.17	t= 1.45		t= -0.23	
Professional knowledge					
My function as a teacher is to develop academic skills and self-efficacy among my students	2.91 (0.62)	3.00 (0.90)	3.00 (0.69)	2.71 (0.46)	2.91 (0.28)
	t= 1.34	t= 0.00		t= -1.79	
I study in depth the teaching materials before I teach my students	3.43 (0.86)	3.47 (1.03)	3.40 (0.85)	3.19 (0.87)	3.62 (0.64)
	t= 0.12	t= 0.24		t= -1.91	
Environmental knowledge					
The school framework limits time, space and culture and, for the most part, does not allow me to initiate social interaction, cooperation, critical dialogue,	4.52 (0.70)	4.47 (0.66)	4.27 (1.03)	4.57 (0.50)	4.75 (0.44)

teamwork and observing the activities of teachers

	t= -1.97	t= 0.79	t= -1.26		
As a teacher, I have a responsibility for the learning environment that includes social gaps, norms, language, and I can change it to enable the realization of my students' abilities	3.56 (0.75)	3.56 (0.94)	3.68 (0.64)	3.71 (0.78)	3.33 (0.56)
	t= 0.70	t= -0.48	t= 1.88		
Knowledge of others					
I am not interested in the backgrounds and identities of my students	2.25 (0.71)	2.26 (0.75)	2.50 (0.74)	2.14 (0.65)	2.12 (0.67)
	t= 1.64	t= -1.07	t= 0.08		
It is important for me to build a relationship with my students	4.22 (0.76)	4.30 (0.70)	4.04 (0.99)	4.19 (0.60)	4.33 (0.70)
	t= -0.55	t= 1.01	t= -0.72		

Source; own study - General analysis

The statistics show that in relation to **self-knowledge**, teachers apparently express relatively high agreement that they have theories about the learning process that affect their teaching (M = 4.65), and that their teaching approach is shaped by experiences from the teachers who taught them (M = 4.14).

In relation to **personal knowledge**, there is medium agreement that research is important to their teaching (M = 2.88) and that they use pedagogical principles and teaching techniques that are not limited to a particular content area (M = 2.84).

In relation to **professional knowledge**, there is medium agreement that their function as a teacher is to develop academic skills and self-efficacy among students (M = 2.91) and that they study in depth the teaching materials before they teach their students (M = 3.43).

In relation to **environmental knowledge**, teachers apparently express high agreement that the school framework limits time, space and culture and, for the most part, does not allow them to initiate social interaction, cooperation, critical dialogue, teamwork and observing the activities of teachers (M = 4.52). However, there is medium agreement that as a teacher, they have a responsibility for the learning environment that includes social gaps, norms, language, and they can change it to enable the realization of their students' abilities (M = 3.56).

In relation to **knowledge of others**, teachers do not agree with the statement that they are not interested in the backgrounds and identities of their students (M = 2.25) but they express relatively high agreement that it is important for me to build a relationship with my students (M = 4.22). Chart 10 illustrates these findings.

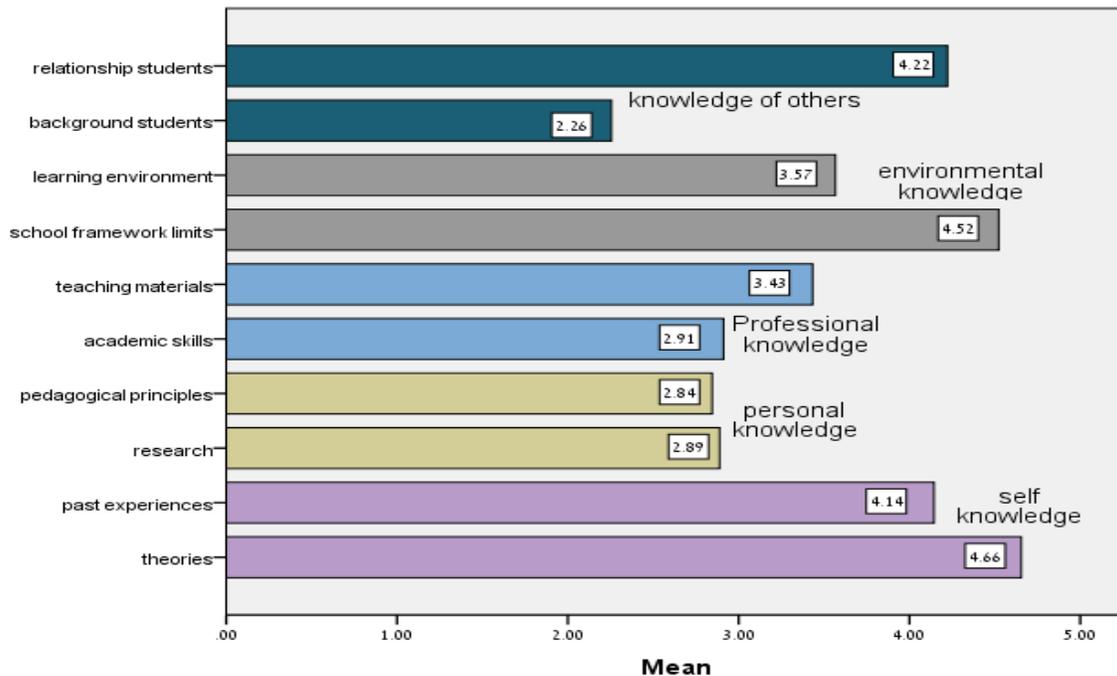
As a result, all the factors examined are irrelevant according to the lack of significance t at the selected level p .

The examination of these statistics concerning the use of different kinds of knowledge among teachers by gender shows that there were no significant differences between male and female teachers in these attitudes. The examination of these statistics concerning the use of different kinds of knowledge among teachers by gender and seniority shows that among women, in most categories of knowledge the results were quite similar among younger and older teachers. There were no significant differences between older and younger women teachers in these attitudes. However, younger female teachers report on little higher scores in the categories of personal knowledge and knowledge of others. Younger female teachers also report that the school framework limits their work more in comparison to older teachers.

Among men, in most categories of knowledge the results were quite similar among younger and older teachers. There were no significant differences between older and younger men teachers in these attitudes. However, older male teachers report on higher scores in the category of professional knowledge. Older male teachers also report that the school framework limits their work more in comparison to younger teachers, but they also report on lower responsibility for the learning environment in comparison to younger teachers.

Thus, all factors were found irrelevant according to the lack of significance t at the selected level p . Chart 10 illustrates the findings of table 4 above with the distribution of means of the different kinds of knowledge.

Chart 10: Distribution of means of the different kinds of knowledge

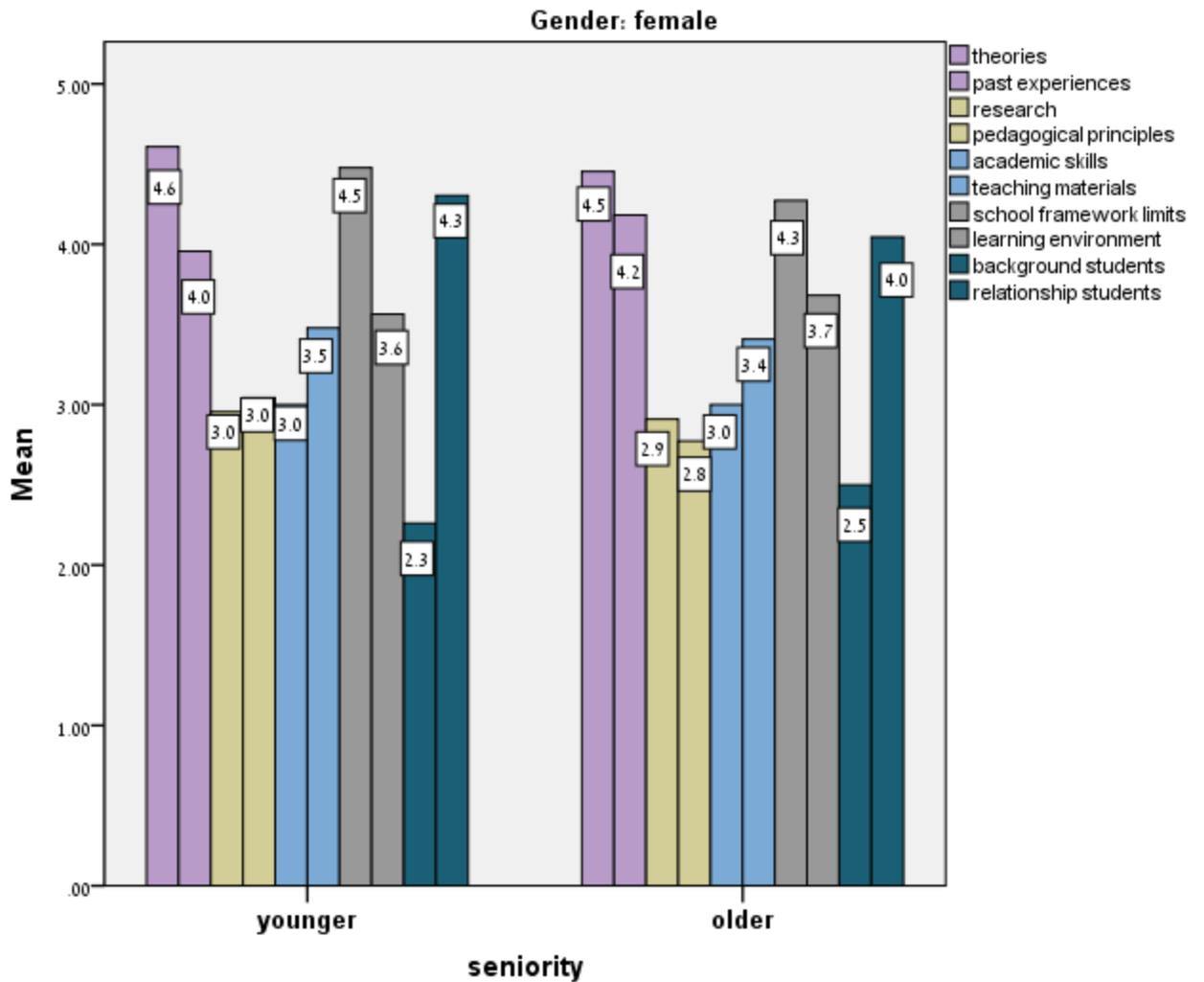


Source; own study - General analysis

It appears that the teachers report on higher rates of knowledge in the categories of self-knowledge, environmental knowledge and knowledge of others. The teachers report on medium rates of knowledge in the categories of professional knowledge and personal knowledge.

Charts 11-12 below present detailed analysis of these statistics for young and older teachers among women, and young and old teachers among men.

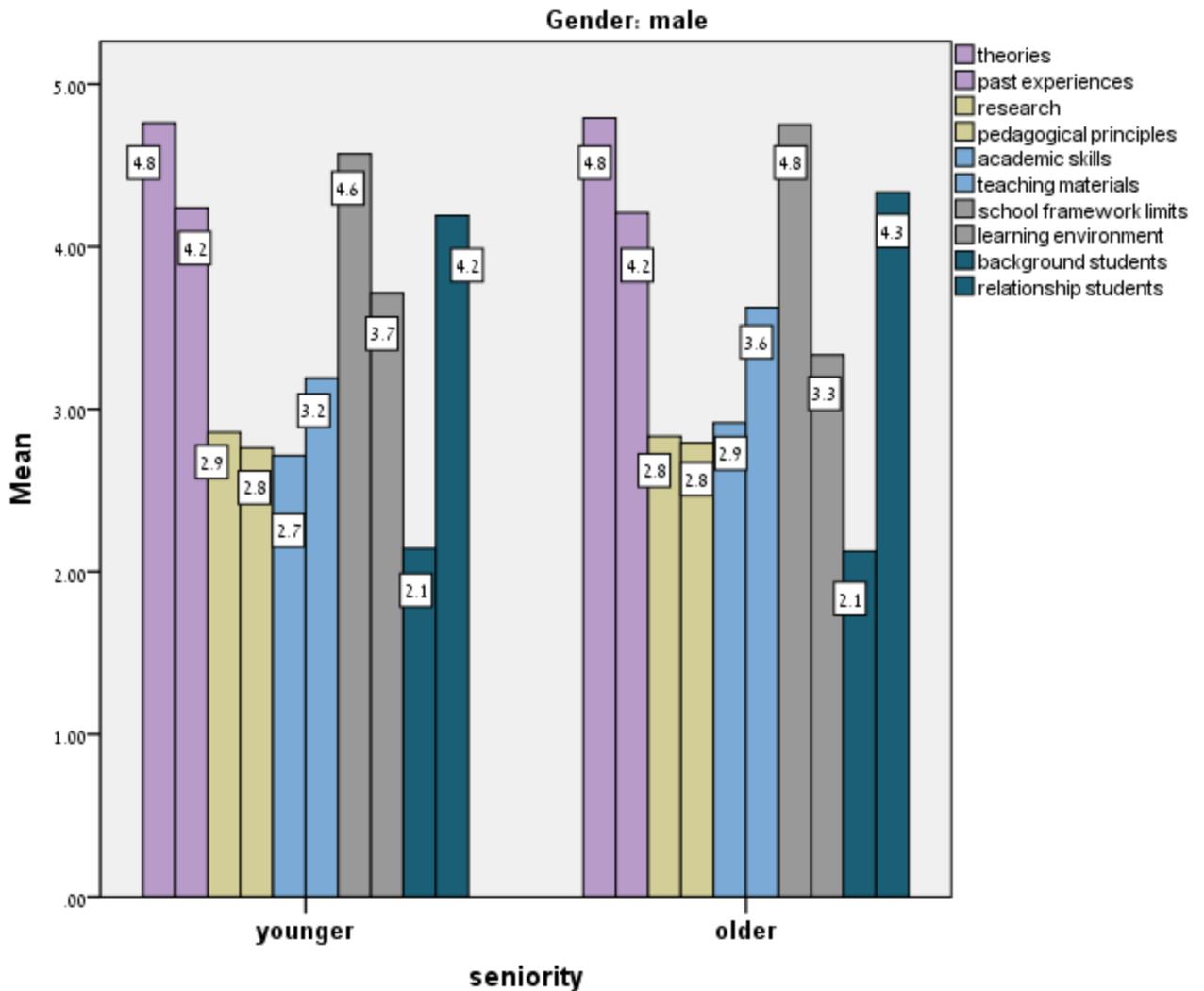
Chart 11: Distribution of means of the different kinds of knowledge among women



Source; own study - General analysis

It appears that the teachers younger and older female report on higher rates of knowledge in the categories of self-knowledge (M= 4.0 and above), environmental knowledge (M= 4.0 approximately) and knowledge of others (M= 3.5 and above). The teachers report on medium rates of knowledge in the categories of professional knowledge (M= 3.0 approximately) and personal knowledge (M= 3.0 approximately).

Chart 12: Distribution of means of the different kinds of knowledge among men



Source; own study - General analysis

It appears that the teachers younger and older male report on higher rates of knowledge in the categories of self-knowledge (M= 4.5 and above), environmental knowledge (M= 4.0 approximately) and knowledge of others (M= 3.5 and above). The teachers report on medium rates of knowledge in the categories of professional knowledge (M= 3.0 approximately) and personal knowledge (M= 3.0 approximately).

According to the Illeris model, which describes workplace learning, in this case, the school where the teacher works, professional knowledge is built in a "social learning environment" (Illeris 2011. p. 46). Learning, which is perceived as an individual phenomenon, is in fact a holistic human process that always includes a social element.

Awareness of learning is an internal psychological process in which the learner builds meaning for knowledge, skills, emotions and social interaction and develops a broad understanding and ability to cope with the challenges of practical life. This process includes elements of reflection, transformative and metacognitive learning (Illeris ,2003. p. 227; Illeris, 2007.p. 17). The basic assumption is that consciousness undergoes a process of change through learning, whatever the learner chooses to give him attention or listening to. Therefore, the idea of "teacher awareness" and the learning of its knowledge takes into account the teacher's interdisciplinary perspective on teaching methods and teaching materials that clearly bind teachers to awareness, and also characterize the challenges of the modern world, with an emphasis on the development of science and technology that influence on the teacher. The following section examines the learning processes of the teachers who serve their work in the school in Israel according to two main general characteristics:

1. Personal learning characteristics that include: emotions, feelings, thoughts, experiences, reflection, diversity in teaching methods and response to differences.
2. Environmental learning features that include: interaction with colleagues and teamwork, belonging to a "professional learning community", interaction with students and interaction between students, peer learning, and the integration of multicultural discourse in the learning process.

Mapping teachers' learning processes will form the basis for creating a learning model to develop awareness of teacher learning and create appropriate actions for improving learning. Here is the distribution of means of the personal learning characteristics of the teachers that are used for the purpose of their work in Israeli schools.

Table 5: Personal learning characteristics of teachers used for their work in school, on a scale of 1-5 (N=90)

Statement	General	Women		Men	
	Sample	<i>younger</i>	<i>older</i>	<i>younger</i>	<i>older</i>
	M (SD)				
My feelings and thoughts influence my learning as a teacher	4.43 (0.70)	4.30 (1.01)	4.27 (0.63)	4.66 (0.48)	4.50 (0.51)
	t= -1.97	t= 0.12		t= 1.12	
I learn in a variety of ways through direct experiences, experiences, reading and reflection	3.45 (0.54)	3.52 (0.59)	3.45 (0.59)	3.42 (0.50)	3.41 (0.50)
	t= 0.57	t= 0.37		t= 0.07	
I adapt the learning to the personal needs of my students on the assumption that there is a difference between students	2.98 (0.72)	3.00 (0.90)	3.13 (0.63)	2.80 (0.67)	3.00 (0.69)
	t= 1.01	t= -0.58		t= -0.95	

Source; own study - General analysis

The statistics show that teachers apparently express high agreement (91.1% among women teachers and 100% among men) that their feelings and thoughts influence their learning as a teacher (M= 4.43). There is medium agreement (55.6% among women teachers and 57.8% among men) that they learn in a variety of ways through direct experiences, experiences, reading and reflection (M= 3.45). In addition, there is medium agreement (46.7% among women teachers and 55.6% among men) that they adapt the learning to the personal needs of students on the assumption that there is a difference between students (M= 2.98).

The examination of these statistics concerning the personal learning characteristics of teachers used for their work in school by gender shows that there were no significant differences between older and younger women teachers in these attitudes. The examination of these statistics concerning the personal learning characteristics of teachers used for their work in school by gender and seniority shows that among both men and women teachers, the results are quite similar between younger and older teachers. There were no significant differences between older and younger women teachers in these attitudes.

Thus, all factors were found irrelevant according to the lack of significance t at the selected level p .

In the next section, the teachers were asked how they would use the school characteristics as a work place of learning in Israeli schools. Table 7 presents the distribution of means of these items.

Table 6: Environmental learning characteristics of teachers used for their work in school, on a scale of 1-5 (N=90)

	<i>General sample</i>	<i>Women</i>		<i>Men</i>	
		<i>younger</i>	<i>older</i>	<i>younger</i>	<i>older</i>
Statement	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
In the teaching work, I acquire various skills while working in a team	2.53 (0.58)	2.86 (0.69)	2.40 (0.50)	2.47 (0.51)	2.37 (0.49)
	$t= 1.82$	$t= 2.53^*$		$t= 0.67$	
I learn by watching the activities of other teachers	2.03 (0.72)	2.13 (0.91)	1.86 (0.63)	2.19 (0.67)	1.95 (0.62)
	$t= -0.43$	$t= 1.12$		$t= 1.19$	
I am in favor of working in pairs, groups and learning teams, and often combine multicultural discourse on the assumption that learning is social	4.22 (0.46)	4.13 (0.45)	4.13 (0.46)	4.33 (0.48)	4.29 (0.46)

t= -1.82

t= -0.04

t= 0.29

p<.05*

Source; own study - General analysis

The statistics show that teachers apparently express high agreement (95.6% among women teachers and 100% among men) that they are in favor of working in pairs, groups and learning teams, and often combine multicultural discourse on the assumption that learning is social (M= 4.22). There is medium agreement (53.3% among women teachers and 42.2% among men) that in the teaching work, they acquire various skills while working in a team (M= 2.53). However, there is low agreement (73.3% among women teachers and 75.6% among men) that they learn by watching the activities of other teachers (M=2.03) (thus approximately 24% of the sample reported on medium agreement as well).

The examination of these statistics concerning the environmental learning characteristics of teachers used for their work in school by gender shows that there were no significant differences between male and female teachers in these attitudes. The examination of these statistics concerning the environmental learning characteristics of teachers used for their work in school by gender and seniority shows that among both genders, younger teachers report on relatively higher use of environmental learning characteristics in comparison to older teachers. Younger women teachers report on significantly higher agreement with that “in the teaching work, they acquire various skills while working in a team”, in comparison to older women teachers ($t(43) = 2.53, p < 0.05$). There were no significant differences between older and younger men teachers in these attitudes.

Thus, all factors were found irrelevant according to the lack of significance *t* at the selected level *p*.

Studies show that the teacher's theory is anchored in his personal past and has an impact on the teacher's perceptions of class reality. Teachers tend to teach as they were taught (Soter, 1995, pp. 303-322). Teachers' knowledge is the result of a constellation of experiences throughout their lives, the beliefs and perceptions developed in their lives, past memories of past teachers, previous teaching experience or childhood experience

related to learning and teaching, family members, and the history of events experienced during his lifetime, all of which shaped his personal data (Ben-Peretz , .et al, 2003. pp. 277-290).

This section will examine the extent to which teachers in Israel who have studied according to the traditional approach act according to it and perceive teaching and learning in the sense of transferring knowledge or perhaps inverted. The mapping will be examined according to "personal learning characteristics" and environmental learning characteristics. These findings serve as a basis for understanding the personal characteristics of teachers from Israeli schools and the awareness among teachers and the impact of awareness on the types of professional knowledge of teachers in Israel. The teachers were asked to rate, on a scale of 1-5 (not at all-very much), a list of items in terms of their significance and importance on the way they think about teaching and learning.

Table 7: Teachers' ranking of importance of characteristics of teaching and learning, on a scale of 1-5 (N=90)

Characteristic	General sample	Women		Men	
		<i>younger</i>	<i>older</i>	<i>younger</i>	<i>older</i>
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
My cultural values	4.72 (0.47)	4.82 (0.38)	4.81 (0.39)	4.80 (0.40)	4.45 (0.58)
	t= 2.03*	t= 0.06		t= 2.30*	
My political and social beliefs	4.61 (0.80)	4.52 (1.03)	4.54 (0.96)	4.66 (0.65)	4.70 (0.46)
	t= -0.91	t= -0.07		t= -0.24	
The behaviors of other people who have had an educational function in my life	4.31 (0.81)	4.34 (0.77)	4.22 (1.02)	4.09 (0.83)	4.54 (0.58)
	t= -0.25	t= 0.44		t= -2.10*	
My personal history as a	4.12	4.13	3.77	4.33	4.25

student in formal educational frameworks	(0.93)	(0.75)	(1.15)	(0.85)	(0.89)
	t= -1.71	t= 1.23		t= 0.31	
The behaviors of my lecturers and teachers	4.12 (0.80)	4.13 (0.86)	4.04 (0.89)	4.33 (0.79)	4.00 (0.65)
	t= -0.39	t= 0.32		t= 1.53	
My personal history as a learner in the family, in society, in work, in sports	4.04 (0.81)	4.43 (0.84)	4.00 (0.87)	4.14 (0.72)	3.62 (0.64)
	t= 2.09*	t= 1.69		t= 2.52*	
Ideas from colleagues	2.44 (0.94)	2.56 (1.30)	2.50 (0.85)	2.47 (0.60)	2.25 (0.89)
	t= 0.37	t= 0.19		t= 0.97	

p<.05*

Source; own study - General analysis

The statistics show that in relation to **personal learning characteristics**, the highest rank of importance and significance on the way teachers think about teaching and learning was the characteristic of their cultural values (100% among women teachers and 97.8% among men). Followed, in second rank their political and social beliefs (91.1% among women teachers and 95.5% among men) and in the fourth place, their personal history as a student in formal educational frameworks (71.1% among women teachers and 86.7% among men).

In relation to **environmental learning characteristics**, the behaviors of other people who have had an educational function in their life was ranked in the third place (82.2% among women teachers and 84.5% among men). Behaviors of lecturers and teachers was ranked on the fifth place (71.1% among women teachers and 80% among men) and their personal history as a learner in the family/society/work/sports ranked on the sixth place (75.6% among women teachers and 66.7% among men). The least important characteristic by the teachers' ranking, with substantially lower score, was ideas from colleagues (15.6% among women teachers and 4.4% among men).

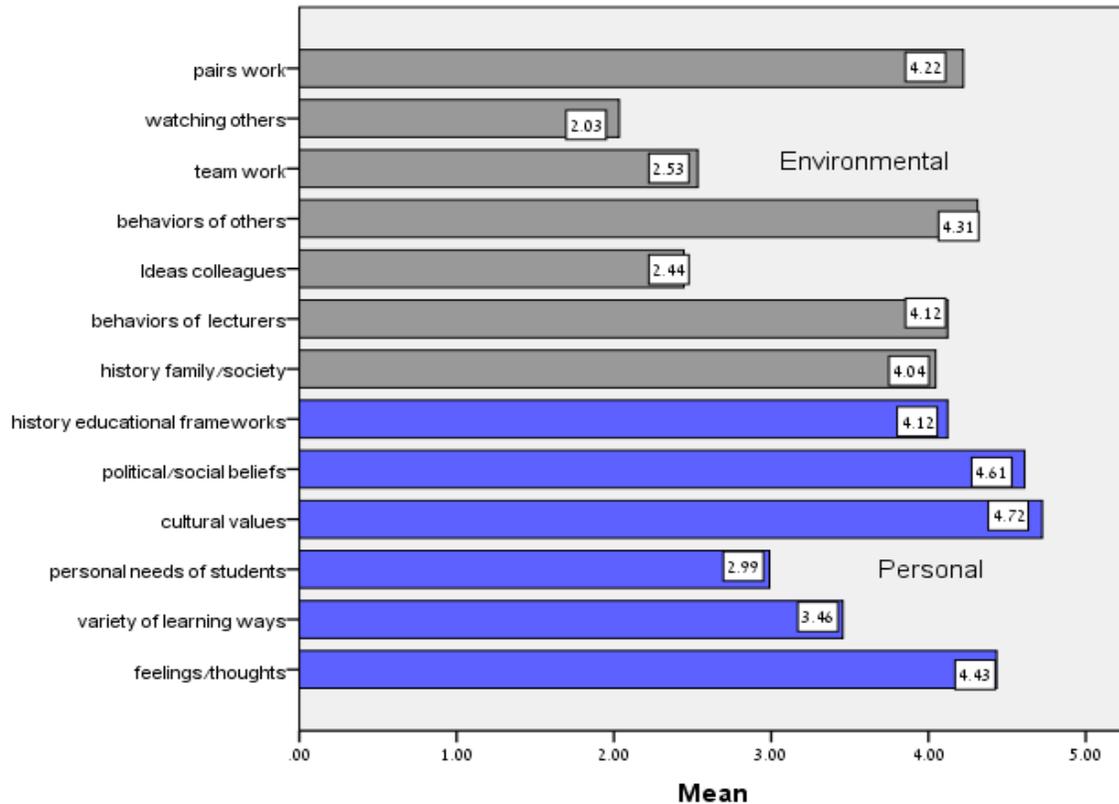
It is important to mention that the teachers were able to add other characteristics they consider important and significant on the way teachers think about teaching and learning. Content analysis of these answers indicated that 57 of the teachers (62.2% women and 64.4% men) mentioned personal learning characteristics and 22 of the teachers (24.4% women and 24.4% men) mentioned environmental learning characteristics.

The examination of these statistics concerning the ranking of importance of characteristics of teaching and learning by gender shows that women ranked their cultural values ($t(88) = 2.03$), as well as their personal history as a learner in the family/society/work/sports ($t(88) = 2.09$) higher in comparison to men.

The examination of these statistics concerning the ranking of importance of characteristics of teaching and learning by gender and seniority shows that younger teachers (both men and women) ranked their personal history as a student in formal educational frameworks and as a learner in the family/society/work/sports higher in comparison to older teachers. However, there were no significant differences between older and younger women teachers in these characteristics. Among men teachers, younger teachers ranked their “cultural values” ($t(43) = 2.30$), and “their personal history as a learner in the family/society/work/sports” ($t(88) = 2.52$) significantly higher in comparison to older teachers ($p < 0.05$). In addition, older men teachers ranked the “behaviors of other people who have had an educational function in their life” ($t(88) = -2.10$) significantly higher in comparison to younger teachers. The other factors were irrelevant.

Chart 13 presents the distribution of means of personal and environmental learning characteristics

Chart 13: Distribution of means of personal and environmental learning characteristics

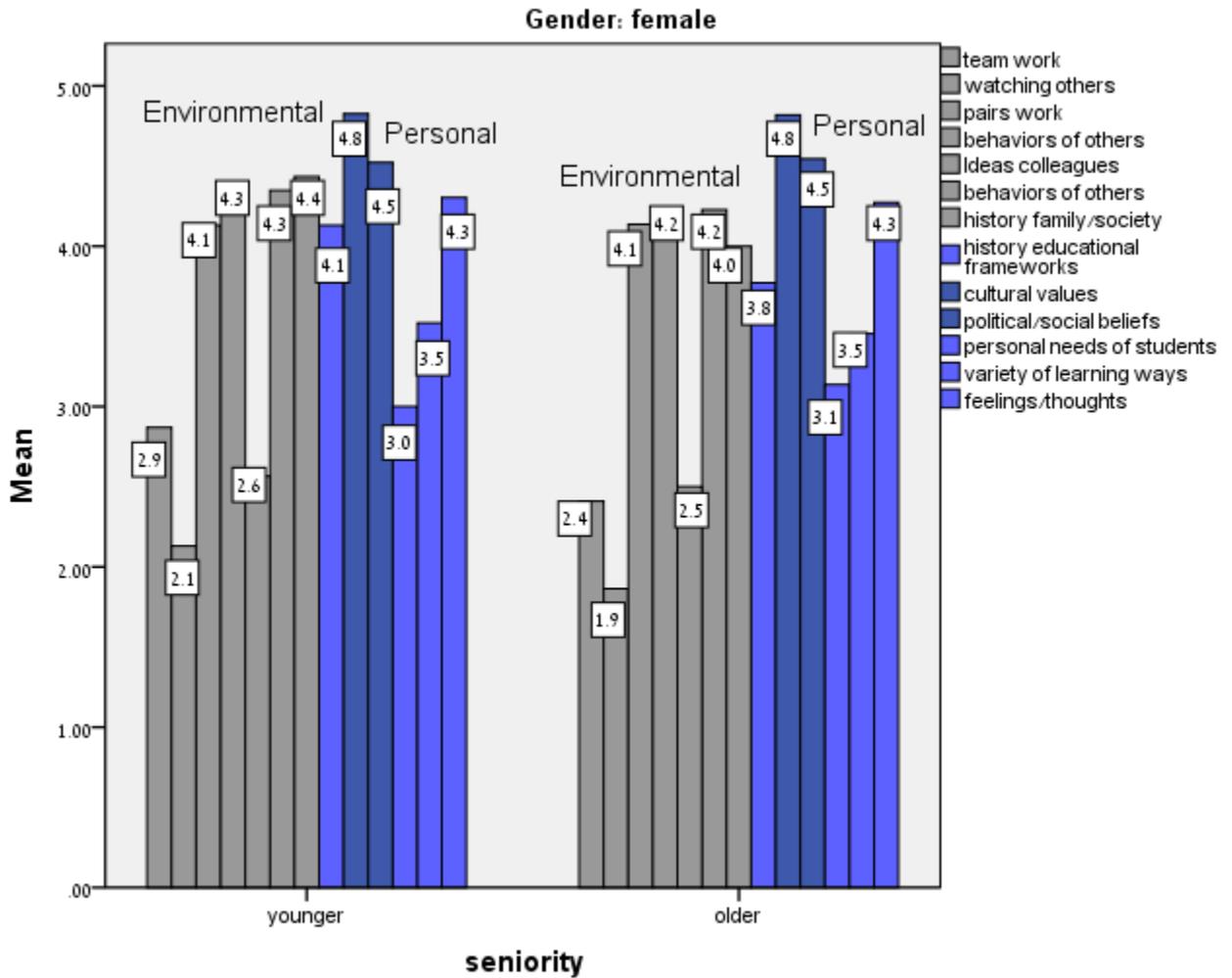


Source; own study - General analysis

It appears that the teachers ranked the importance and significance of the environmental learning characteristics (on the way teachers think about teaching and learning) as medium-high (M= 2.50-4.00 approximately). While they ranked the importance and significance of the personal learning characteristics as high (M= 3.00-4.00 approximately).

Charts 14-15 below present detailed analysis of these statistics for young and older teachers among women, and young and old teachers among men.

Chart 14: Distribution of means of personal and environmental learning characteristics among women

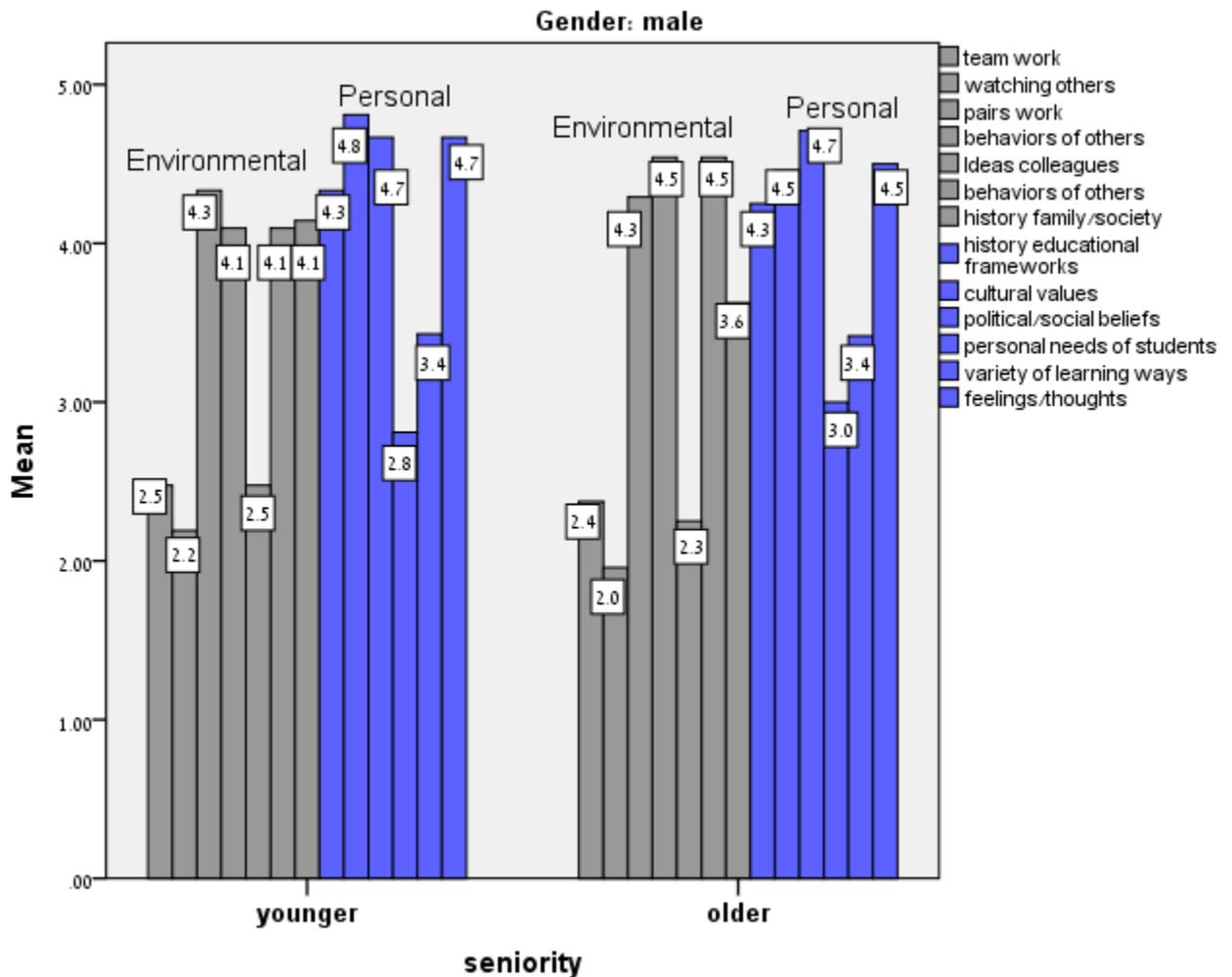


Source; own study - General analysis

It appears that younger and older female teachers ranked the importance and significance of the environmental learning characteristics (on the way teachers think about teaching and learning) as medium-high (M= 2.0-4.0 approximately). While they ranked the importance and significance of the personal learning characteristics as high (M= 3.0-4.5 approximately). The items that have the highest values when it comes to the personality of women were their cultural values (4.8), their political/social beliefs (4.5), their feelings and thoughts influence their learning as a teacher (4.3).

and when it comes to the environment of women were the behaviors of other people who have had an educational function in their life (4.3 younger women, 4.2 older women).

Chart 15: Distribution of means of personal and environmental learning characteristics among men



Source; own study - General analysis

It appears that younger and older male teachers ranked the importance and significance of the environmental learning characteristics (on the way teachers think about teaching and learning) as medium-high (M= 2.0-4.5 approximately). While they ranked the importance and significance of the personal learning characteristics as high (M= 3.0-4.5 approximately). The items that have the highest values were similar to women:

when it comes to the personality of men were their political/social beliefs (4.7), their cultural values (4.8 younger men, 4.5 older men), their feelings and thoughts influence their learning as a teacher (4.7 younger men, 4.5 older men). and when it comes to the environment of men were the behaviors of other people who have had an educational function in their life (4.1 younger men, 4.5 older men).

The opportunities and barriers to learning teachers' awareness of the school environment may arise from both personal and environmental circumstances that are a consequence of the global reality and depend on certain contexts.

The opportunities examined: school breaks, autonomy and self-management, the school as a heterogeneous multicultural environment

The barriers examined: Lack of authority and self-confidence of teachers, Conflicts and dilemmas in the teacher's world of knowledge, Lack of formal professional development for teacher's awareness in a changing environment - this topic was examined as part of the sociodemographic background characteristics of the sample in the first part of the questionnaire.

Identify and raise awareness of the opportunities and barriers, will emphasize the importance of awareness as an interactive process that takes place between the teacher and himself and between the teacher and his or her environment within a particular context and context, and will enable the development of practical proposals for teachers to improve their learning process, prevent further barriers in the future and create additional opportunities for learning awareness. Here is the distribution of means of the items measuring the opportunities to teaching awareness among Israeli teachers.

Table 8: Opportunities for teachers' awareness in school, on a scale of 1-5 (N=90)

Statement	General sample	Women		Men	
	<i>M (SD)</i>	<i>younger</i> <i>M (SD)</i>	<i>older</i> <i>M (SD)</i>	<i>younger</i> <i>M (SD)</i>	<i>older</i> <i>M (SD)</i>
The breaks at school give me an opportunity to get to know the school culture	4.58 (0.49)	4.73 (0.44)	4.45 (0.50)	4.47 (0.51)	4.66 (0.48)
	<i>t</i> = 0.21	<i>t</i> = 1.99*		<i>t</i> = -1.28	
Open climate and professional autonomy for teachers, encourage teachers to develop awareness of students' needs and initiate school changes	4.41 (0.49)	4.65 (0.48)	4.31 (0.47)	4.38 (0.49)	4.29 (0.46)
	<i>t</i> = 1.50	<i>t</i> = 2.32*		<i>t</i> = 0.62	
A heterogeneous multicultural framework encourages the social and cultural awareness of teachers and students	3.83 (0.43)	4.00 (0.42)	3.81 (0.39)	3.90 (0.30)	3.62 (0.49)
	<i>t</i> = 1.73	<i>t</i> = 1.48		<i>t</i> = 2.25*	

p < .05*

Source; own study - General analysis

The statistics show that teachers express relatively high agreement that the breaks at school provide an opportunity to get to know the school culture (M= 4.58) and that open climate and professional autonomy for teachers encourage teachers to develop awareness of students' needs and initiate school changes (M= 4.41). There was medium-high agreement that a heterogeneous multicultural framework encourages the social and cultural awareness of teachers and students (M= 3.83).

The examination of these statistics concerning the opportunities for teachers' awareness in school by gender shows that there were no significant differences between male and female teachers in these attitudes. The examination of these statistics

concerning the opportunities for teachers' awareness in school, by gender and seniority, shows that among women, younger teachers report on significantly higher level of opportunities for teachers' awareness in school in comparison to older teachers: "The breaks at school give me an opportunity to get to know the school culture" ($t(43) = 1.99, p < 0.05$), as well as "open climate and professional autonomy for teachers, encourage teachers to develop awareness of students' needs and initiate school changes" ($t(43) = 2.32, p < 0.05$). Among men, younger teachers report on significantly higher opportunities only in the category of social/cultural awareness in comparison to older teachers ($t(43) = 2.25, p < 0.05$).

As a result, all the factors examined are irrelevant according to the lack of significance t at the selected level p .

The next section examined which barriers limit the awareness of teachers and their work in Israeli schools. Table 10 presents the distribution of means of these items.

Table 9: Barriers limiting teachers' awareness and work, on a scale of 1-5 (N=90)

Statement	General sample		Women		Men	
	M (SD)	younger	older	younger	older	
		M (SD)	M (SD)	M (SD)	M (SD)	
The contemporary teacher is not the only "knowledge authority" and therefore is unable to perform the duties of a teacher properly	1.91 (0.66)	1.78 (0.67)	1.95 (0.65)	1.80 (0.60)	2.08 (0.71)	$t = -0.63$
I do not do everything I want and all that I believe in with my students because I'm a bit afraid of what the result will be	4.14 (0.91)	4.04 (1.18)	3.95 (0.99)	4.38 (0.74)	4.20 (0.65)	$t = -0.87$ $t = 0.27$
						$t = -1.37$ $t = 0.82$

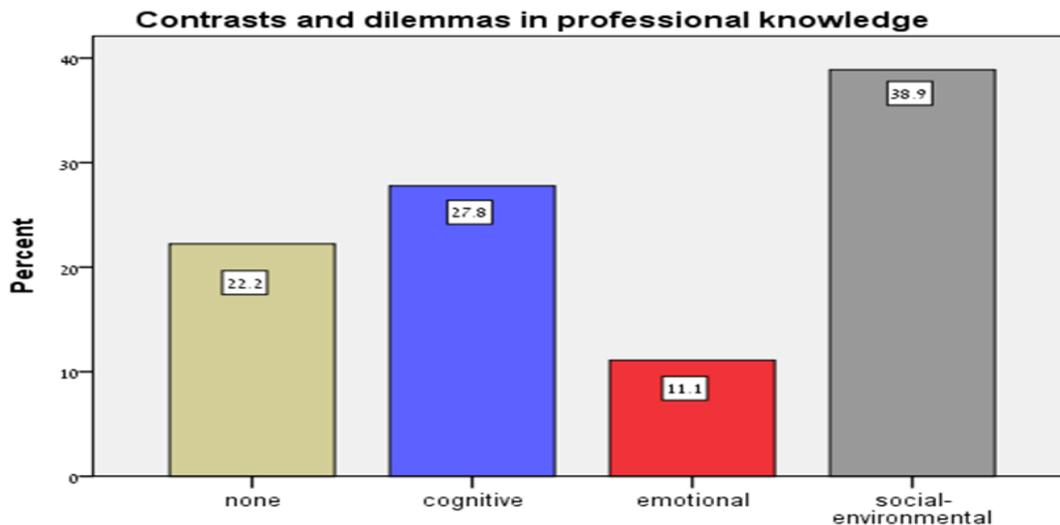
Source; own study - General analysis

The statistics show that teachers express relatively high agreement that they do not do everything they want and all that they believe in with students because they are a bit afraid of what the result will be (75.6% among women and 86.6% among men). However, teachers express relatively low agreement that the contemporary teacher is not the only "knowledge authority" and therefore is unable to perform the duties of a teacher properly (84.5% among women and 80% among men).

The examination of these statistics concerning the barriers limiting teachers' awareness and work by gender shows that there were no significant differences between male and female teachers in these attitudes. The examination of these statistics concerning the barriers limiting teachers' awareness and work by gender and seniority shows that the results were quite similar among younger/older men and women teachers. There were no significant differences between older and younger teachers in these attitudes. Thus, the factors of the barriers limiting teachers' awareness and work were all found irrelevant.

An additional barrier examined contrasts and dilemmas in the teachers' world of knowledge. The teachers were asked to elaborate what contrasts and dilemmas, from their experience so far, they experience in their professional knowledge and how do they affect/ not affect their teaching work. Chart 16 presents the distribution of answers that were categorized by cognitive, emotional and social in the analysis of qualitative content.

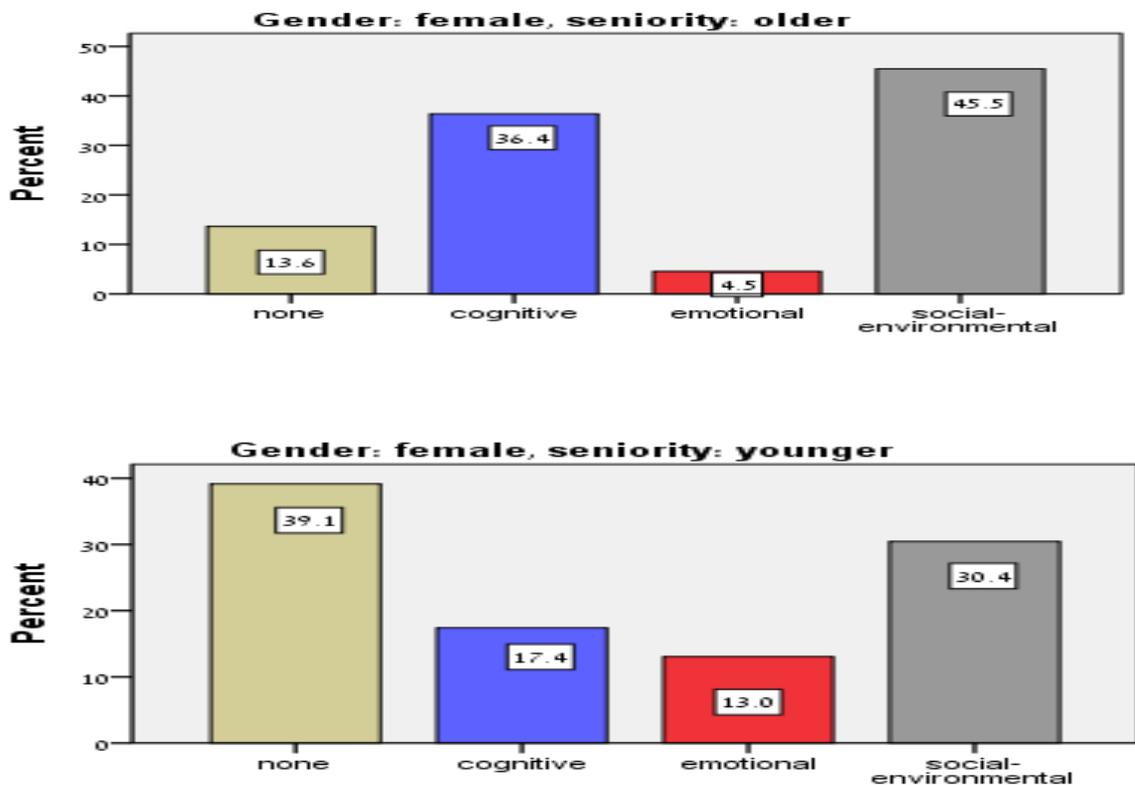
Chart 16: Distribution of contrasts/dilemmas in teachers' world of knowledge



Source; own study - General analysis

The statistics show that the majority of the contrasts and dilemmas teachers experience in their professional knowledge are social-environmental (approximately 39%) (37.8% among women teachers- 34.02 mentions and 40% among men- 36 mentions - the highest value). Approximately 28% of the teachers report on cognitive contrasts and dilemmas (26.7% among women teachers- 27.03 mentions and 28.9% among men-26.01 mentions- the highest value). In addition, 11% of the teachers report on emotional contrasts and dilemmas (8.9% among women teachers- 8/01 mentions and 13.3% among men-11.97 mentions- the highest value). Finally, 22% of the teachers report they have no contrasts and dilemmas (26.7% among women teachers-24.03 mentions- the highest value,17.8% among men- 16.02 mentions). Charts 17-18 below present detailed analysis of these statistics for young and older teachers among women, and young and old teachers among men.

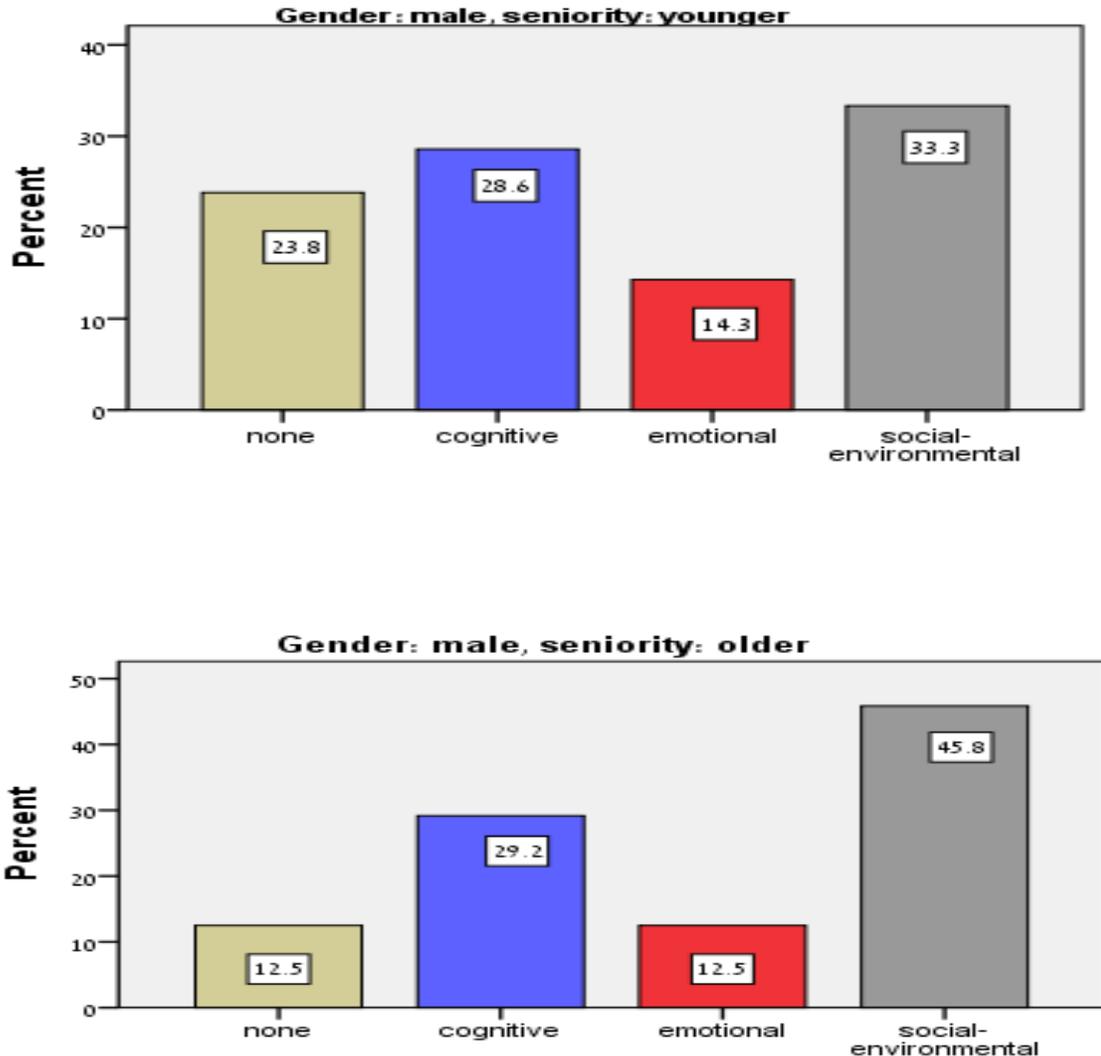
Chart 17: Distribution of contrasts/dilemmas in teachers' world of knowledge among women



Source; own study - General analysis

The statistics regarding the female teachers indicate that older teachers report on higher rates of cognitive contrasts and dilemmas (36.4%- 8 mentions -the highest value) in comparison to younger teachers (17.4%- 4 mentions). Older female teachers report also on higher rates of social-environmental contrasts and dilemmas (45.5%- 10.01 mentions- the highest value) in comparison to younger teachers (30.4%- 6.9 mentions). However, younger female teachers report on higher rates of emotional contrasts and dilemmas (13.0% -2.99 mentions -the highest value) in comparison to older teachers (4.5%-0.99 mentions).

Chart 18: Distribution of contrasts/dilemmas in teachers' world of knowledge among men



Source; own study - General analysis

The statistics regarding the male teachers indicate that older teachers report on relatively similar rates of cognitive contrasts and dilemmas (29.2% -7 mentions - the highest value) as younger teachers (28.6% -6 mentions -the highest value). Older male teachers report on higher rates of social-environmental contrasts and dilemmas (45.8% - 11 mentions -the highest value) in comparison to younger teachers (33.3% - 7 mentions - the highest value). Younger male teachers report on similar rates of emotional contrasts and dilemmas (14.3% - 3 mentions -the highest value) as older teachers (12.5% -3 mentions - the highest value).

Another barrier examined in the first part of the questionnaire is the lack of formal professional development for awareness of the changing environment.

As part of the adjustment of the education system to postmodern education and the new needs of students, It is critical to plan professional training and development of teachers adapted to the changing environment that deals with postmodern ideas and principles, while developing teachers' awareness of professional and personal knowledge, developing awareness of the transition from content-focused teaching to innovative teaching and a reexamination of its inherent assumptions.

In order to examine the differences in the main research variables between teachers trained on globalization and those who did not, an independent sample test was conducted. The following table presents the significant differences in the results of the analysis.

Table 10: Differences in the main research variables by teacher training for globalization

Variables	Did have training N=14		Did not have training N=76		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Awareness to traditional/ innovative teaching	2.45	0.76	2.10	0.26	3.09**
<i>Teaching approaches</i>	2.80	1.00	2.32	0.32	3.36**

<i>Combination of skills</i>	2.38	0.58	2.12	0.24	2.79**
<i>Learning structure</i>	2.17	0.87	1.86	0.37	2.20*
Barrier: fear	3.64	1.33	4.23	0.79	-2.25*
Awareness to teachers' function	2.50	0.57	2.23	0.32	2.42*
<i>Cognitive</i>	2.82	0.91	2.38	0.45	2.70**
Self/personal Knowledge	2.88	0.74	2.46	0.43	2.88**

$p < .05^*$, $p < .01^{**}$

Source; own study - General analysis

The results of an independent sample t-test analysis show that there were significant differences between teachers that did have globalization training and those who did not in the awareness to traditional/innovative teaching ($t(88) = 3.09$, $p < .01$) and all of its three subscales. There is significantly higher awareness to innovative teaching among teachers that did have globalization training in comparison to those who did not.

There were significant differences between teachers that did have globalization training and those who did not in the fear barrier ($t(88) = -2.25$, $p < .05$). The level of the fear barrier was significantly higher among teachers that did not have globalization training in comparison to those who did.

Additionally, there were significant differences between teachers that did have globalization training and those who did not in the general awareness to teachers' function ($t(88) = 2.42$, $p < .05$), as well as in its cognitive dimension ($t(88) = 2.70$, $p < .01$). The level of awareness to teachers' function, generally as well as cognitive, was

significantly higher among teachers that did have globalization training in comparison to those who did not.

Finally, there were significant differences between teachers that did have globalization training and those who did not in the self/personal knowledge ($t(88) = 2.88, p < .01$). The level of use of self/personal knowledge was significantly higher among teachers that did have globalization training in comparison to those who did not.

Thus, all of the variables analyzed above were relevant and these findings will be further discussed in chapter 6.

This analysis was examined by gender as well. The results indicated that among women (younger and older), the differences between teachers that did have globalization training and those who did not were mostly similar to the general sample. Among women teachers that did have globalization training there were significantly higher awareness to innovative teaching, higher awareness to teachers' function, (generally as well as cognitive, emotional and social), higher self/personal and environmental knowledge. However, among men (younger and older) there were no significant differences between teachers that did have globalization training and those who did not.

The school's internal and external environment dictates the organization of the personal and professional knowledge and teaching pattern of the teacher. The teacher builds his awareness actively as a result of the interaction of inner knowledge with the actual reality outside it. The teacher interprets reality and actively builds upon his professional knowledge. Therefore, his perception of the external environment is unique to him and his interpretation. Hence, the professional knowledge and the awareness of the teacher are not a finished product that is neutral, but contextual and dynamic embedded in an environmental context and therefore, is relative and variable.

The following section examines the environmental components and unique characteristics of Israeli schools and their impact on professional knowledge and teacher's awareness in Israel. The teachers were asked to list three positive characteristics and three negative characteristics of their school (an open question). Table 12 presents the distribution of answers that were categorized by quantitative analysis. Since this question had multiple answers, the characteristics are listed by frequency of mentions, from the highest to the lowest.

Table 11: Positive and negative characteristics of the school as a work place by teachers' perceptions

<i>Negative characteristics</i>	<i>Number of mentions</i>
Physical, organizational	93
Time distribution	60
Personal professional development	30
Social	24
Education of values	23
External school relationships	14
Attitudes towards diversity	8
<i>Positive characteristics</i>	<i>Number of mentions</i>
Social	62
Physical, organizational	61
Personal professional development	26
Attitudes towards diversity	24
External school relationships	1

Source; own study - General analysis

The statistics show that in relation to the negative characteristics, the most frequent characteristic was the physical-organizational (closed building, lack of equipment or labs etc.) (93 mentions – 21.8%). The second most frequent negative characteristic was time distribution (workload, time pressure, overtime, events) (60 mentions -%14). Following that, with lower frequency the teachers mentioned the categories of personal-professional development (30 mentions – 7%), social characteristic (24 mentions – 5.6%), education of values (23 mentions – 5.3%), external school relationships (14 mentions – 3%) and the least frequent as a negative characteristic was attitudes towards diversity (8 mentions – 2%).

In relation to the positive characteristics, the most frequent characteristic was the social characteristic (good school team, friendships, social climate) (62 mentions – 14.5%). The second most frequent positive characteristic was the physical-organizational (similarity to the teacher's school, principle that promotes entrepreneurship) (61 mentions – 14%). Following that, with lower frequency, the teachers mentioned the categories of personal-professional development (26 mentions – 6%), attitudes towards diversity (24 mentions – 5.6%) and external school relationships (1 mention – 0.2%). These data are descriptive from open-ended question analysis and no statistical analysis can be performed by gender and seniority.

The next part of the questionnaire analysis presents the relationship between the various variables: professional knowledge of the teacher, awareness of traditional / innovative teaching, characteristics of the teacher, characteristics of schools in Israel. This is in order to examine mutual influences, as well as to understand the factors that most influence the professional knowledge and awareness of teachers in Israeli schools.

The traditional approach to knowledge, teacher awareness, and curriculum sees the teacher as a center, uniformity for all students, and aims to achieve a uniform standard in the test. In this sense, the teacher uses the textbook as a source of knowledge and values while the students absorb the knowledge passively.

At the other end of the continuum, postmodern education includes a combination of modern educational ideologies that see the child at the center and a curriculum adapted to each student, building knowledge and processes of discourse, research, collaboration, fostering learning skills, criticality and social sensitivity. This stream developed following criticism of traditional education and emphasizes the combined effects of the education system with society in order to adapt the education system to the needs of students in the changing environment. The differences between the traditional and the modern streams are the definition of the basic elements in education that include the goals of education, the knowledge and awareness of the teacher that influence the educational goals of the curriculum, the role and position of teachers and students in teaching and evaluation teaching processes, the teaching environment and pedagogical perceptions of teachers.

The traditional and modern streams are not fully realized in Israel's schools. Today, the educational system is characterized by traditional and modern teaching characteristics that are applied in the teachers' educational practice.

The following section examines the relationship between the use of types of knowledge in Israeli schools and teachers' awareness of traditional or innovative teaching according to three main categories: personal and self-knowledge, professional knowledge, environmental and school knowledge. Awareness of the two elements of encyclopedic and modern knowledge stimulates the activity of the teacher, who seeks to adapt to the changing conditions. In order to examine the relationships between teachers' knowledge to awareness to traditional/innovative teaching, a Pearson correlation analysis was performed. Table 13 presents the results.

Table 12: Pearson correlations between teachers' knowledge to awareness to traditional/innovative teaching (N=90)

	awareness traditional/ innovative teaching	Self/ personal knowledge	Professional knowledge	Environment al/ school knowledge
awareness to traditional/innovati ve teaching	---			
	.36**	---		
Self/ personal knowledge				

	.48**	.23*	---	
Professional knowledge				
	.27**	-.17	-.38**	---
Environmental/ school knowledge				

p<.05*, *p*<.01**

Source; own study - General analysis

The results of a Pearson correlation show significant positive relationships between self/personal knowledge to awareness to traditional/innovative teaching ($r=0.36$, $p<.01$), professional knowledge ($r=0.48$, $p<.01$) and environmental/school knowledge ($r=0.27$, $p<.01$). Higher level of use of knowledge, in all categories is related to significantly higher awareness of the teacher to innovative teaching (self/personal knowledge, professional knowledge, environmental/school knowledge). Accordingly, lower level of use of knowledge, in all categories is related to significantly higher awareness of the teacher to traditional teaching.

Additionally, there was a significant positive relationship between the use of self/personal knowledge and the use of professional knowledge ($r=0.23$, $p<.05$). Higher level of use of self/personal knowledge is related to significantly higher level of use of professional knowledge.

However, an interesting finding was a significant negative relationship between the use of professional knowledge and the use of environmental/school knowledge ($r=-0.38$, $p<.01$). Higher level of use of professional knowledge is related to significantly lower level of use of environmental/school knowledge.

This analysis was examined by gender as well. The results indicated that among women generally, the relationships between teachers' knowledge to awareness to traditional/innovative teaching were identical to the general sample. However, among

younger women, there was no relationship between teachers' environmental/school knowledge to awareness to traditional/innovative teaching. Among older women, there was no relationship between teachers' self/personal knowledge to awareness to traditional/innovative teaching.

Among men generally, there were no significant relationships between teachers' knowledge to awareness to traditional/innovative teaching. However, among younger men, there was a significant positive relationship between teachers' professional knowledge to awareness to traditional/innovative teaching.

The relationships between use of knowledge and awareness of traditional / innovative teaching were also examined according to the three subscales: 1. Teaching approaches 2. combination of skills 3. Learning structure. The findings of Pearson correlation analysis were in accordance with the general scale of awareness to traditional/innovative teaching. There was significant positive relationship between the three subscales of awareness to traditional/innovative teaching: teaching approaches, combination of skills, learning structure and between all categories of knowledge, with only one exception: the subscale of learning structure was not related to environmental/school knowledge.

All analyzed factors and calculated correlation values matter, and these findings will be further discussed in chapter 6. The findings are presented in the table below.

Table 13: Pearson correlations between subscales of teachers' knowledge and awareness to traditional/ innovative teaching (N=90)

	Self/ personal knowledge	Professional knowledge	Environment al/ school knowledge
teaching approaches	.39**	.47**	.37**
	.31**	.44**	.27**

combination of

skills

learning

.28**

.40**

.11

structure

$p < .01^{**}$

Source; own study - General analysis

In order to examine the relationships between awareness to traditional/innovative teaching and awareness to the teachers' function according to three sub-indices: cognitive, emotional and social, a Pearson correlation analysis was performed.

All analyzed factors and calculated correlation values matter,

The findings presented in the following table, Table 15, will be used to understand the effect of teacher's awareness to traditional / innovative teaching on their awareness of the functioning of the teachers in the school in Israel.

Table 14: Pearson correlations between awareness to traditional/innovative teaching and awareness to the teachers' function (N=90)

	awareness traditional/ innovative teaching	Teachers' function- general	Cognitiv e	Emotional	Social
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awareness to
traditional/innovati
ve teaching

.36**

Teachers' function-

general					
	.43**	.88**	---		
Cognitive					
	.24*	.62**	.32**	---	
Emotional					
Social	.03	.57**	.55**	-.17	---

p<.05*, *p*<.01**

Source; own study - General analysis

The results of a Pearson correlation show a significant positive relationship between awareness to traditional/innovative teaching and teachers' function ($r= 0.36$, $p<.01$). Higher awareness of the teacher to innovative teaching is related to significantly higher level of function of the teacher.

Additionally, there were significant positive relationships between awareness to traditional/innovative teaching and the subscales of teachers' function: the cognitive ($r= 0.43$, $p<.01$) and the emotional ($r= 0.24$, $p<.05$). Higher awareness of the teacher to innovative teaching is related to significantly higher levels of function of the teacher in the cognitive and emotional dimensions. However, there was no significant relationship between awareness to traditional/innovative teaching and the social subscale of teachers' function.

This analysis was examined by gender as well. The results indicated that among women generally, there were significant positive relationship between teachers' awareness to traditional/innovative teaching and teachers' function (general) and on the cognitive subscale. Among younger women teachers the results were identical and among

older teachers there was a significant positive relationship between teachers' awareness to traditional/innovative teaching and teachers' function only on the cognitive subscale.

Among men (generally, as well as younger and older), there were no significant relationships between teachers' awareness to traditional/innovative teaching and teachers' function. All analyzed factors and calculated correlation values matter.

In addition, the relationships between the subscales of the awareness to traditional/innovative teaching and teachers' function were examined. The findings of Pearson correlation analysis showed that all three subscales of awareness to traditional/innovative teaching had significant positive relationships with the general variable of teachers' function (teaching approaches $r= 0.38$, $p<0.01$; combination of skills $r= 0.31$, $p<0.01$; learning structure $r= 0.28$, $p<0.01$). The subscale of teaching approaches had significant positive relationships with the cognitive $r= 0.46$, $p<0.01$ and emotional dimensions $r= 0.26$, $p<0.05$. The subscale of learning structure had significant positive relationships with the cognitive $r= 0.29$, $p<0.01$ and emotional dimensions $r= 0.22$, $p<0.05$. The subscale of combination of skills had a significant positive relationship with the cognitive dimension only $r= 0.42$, $p<0.01$. There were no significant relationships between the subscales of awareness to traditional/innovative teaching and the social dimension of the teacher's function. All analyzed factors and calculated correlation values matter. These findings are presented in table 16.

Table 15: Pearson correlations between subscales of awareness to traditional/ innovative teaching and the subscales of teachers' function (N=90)

	Cognitive	Emotional	Social	Teachers' function-general
teaching approaches	.46**	.26*	.03	.38**
	.42**	.18	.02	.31**

combination
of
skills

learning	.29**	.22*	.04	.28**
structure				

$p < .05^*$, $p < .01^{**}$

Source; own study - General analysis

This analysis was examined by gender as well. The results indicated that among women generally, there were significant positive relationships between all the three subscales of awareness to traditional/ innovative teaching to the general and cognitive teachers' function. Among younger women teachers the results were identical and among older teachers there were significant positive relationship only between teaching approaches and combination of skills to teachers' function only on the cognitive subscale.

Among men generally, there was a significant positive relationship only between teaching approaches to the emotional teachers' function. Among younger men teachers the results were identical and among older teachers there was a significant positive relationship only between combination of skills to the emotional teachers' function. All of the above analyzed and calculated correlation values were significant, except for the social dimension that is irrelevant. These findings will be further discussed in chapter 6.

In order to examine and to understand the relationships between the personal and environmental characteristics of teachers' learning and the awareness to traditional/innovative teaching, according to the three sub-indices: teaching approaches, combination of skills, learning structure, a Pearson correlation analysis was performed. Table 17 presents the results.

Table 16: Pearson correlations between characteristics of teacher's learning and awareness to traditional/ innovative teaching (N=90)

Teaching	Combination	learning	Awareness to
----------	-------------	----------	--------------

	approaches	of skills	structure	traditional/ innovative teaching
Teachers' learning	.25*	.21*	.13	.22*

p<.05*

Source; own study - General analysis

The results of a Pearson correlation showed there was a significant positive relationship between teachers' learning and the general awareness to traditional/innovative teaching ($r= 0.22, p<.05$). The more the teacher's learning is influenced by personal and environmental characteristics, the higher the awareness of the teacher to innovative teaching. Additionally, there were a significant positive relationship between teachers' learning and two of the subscales of awareness to traditional/innovative teaching: teaching approaches and combination of skills. All of the above analyzed and calculated correlation values were significant, except for the learning structure that is irrelevant. These findings will be further discussed in chapter 6.

This analysis was examined by gender as well. The results indicated that among women generally, there was a significant positive relationship only between teachers' learning to teaching approaches. Among younger female teachers, there were no significant relationships between teachers' learning and awareness to traditional/innovative teaching. Among older female teachers, there were significant positive relationships between teachers' learning and the awareness to traditional/innovative teaching in all categories.

Among men generally, as well as younger and older teachers, there were no significant relationships between teachers' learning and awareness to traditional/innovative teaching.

The opportunities and barriers to learning teachers' awareness of the school environment may arise from both personal and environmental circumstances that are a consequence of the global reality and depend on certain contexts.

The opportunities examined: school breaks, autonomy and self-management, the school as a heterogeneous multicultural environment. These are environmental elements.

The barriers examined: Lack of formal professional development for teacher awareness in a changing environment - this topic was examined as part of the sociodemographic background characteristics of the sample - Table 1. Additional barriers examined: lack of authority and self-confidence of teachers, conflicts and dilemmas in the world of teachers' knowledge. These are personal components.

Examining the connections between opportunities and barriers to awareness of the changing environment and awareness of traditional / innovative teaching will help to understand the impact of opportunities and barriers according to personal and environmental characteristics on the professional knowledge and awareness of teachers in Israeli schools. For this purpose, the Pearson test was conducted. The findings are presented in the table 18 below.

Table 17: Pearson correlations between opportunities and barriers to awareness of changing environment and awareness to traditional/ innovative teaching (N=90)

	Teaching approaches	Combination of skills	learning structure	Awareness to traditional/ innovative teaching
Opportunities to awareness of changing environment	.12	.11	.10	.10
Barrier: teacher's	-.32**	-.25*	-.18	-.27**

self-efficacy

Barrier: fear	-.53**	-.36**	-.21*	-.41**
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$p < .05^*$, $p < .01^{**}$

Source; own study - General analysis

The results of a Pearson correlation showed there was no significant relationship between opportunities to awareness of changing environment and the awareness to traditional/ innovative teaching, or its subscales.

There was a significant negative relationship between the barrier of fear (“I do not do everything I want and all that I believe in with my students because I'm a bit afraid of what the result will be”) and the awareness to traditional/ innovative teaching ($r = -0.41$, $p < .01$), as well as to all of its subscales. Higher level of the fear barrier is related to higher awareness to traditional teaching, and on the contrary - lower level of the fear barrier is related to higher awareness to innovative teaching.

Additionally, there was a significant negative relationship between the barrier of self-efficacy (The contemporary teacher is not the only "knowledge authority" and therefore is unable to perform the duties of a teacher properly) and the awareness to traditional/ innovative teaching ($r = -0.27$, $p < .01$). Higher level of the self-efficacy barrier is related to higher awareness to traditional teaching, and on the contrary - lower level of the self-efficacy barrier is related to higher awareness to innovative teaching. In addition, there were significant negative relationships between the barrier of self-efficacy and two of the subscales of the awareness to traditional/ innovative teaching: Teaching approaches and combination of skills. All of the above analyzed and calculated correlation values were significant, except for the opportunities to awareness of changing environment that is irrelevant. These findings will be further discussed in chapter 6.

This analysis was examined by gender as well. The results indicated that among women generally, there was a significant negative relationship between the barrier of self-efficacy and teaching approaches. Additionally, there were significant negative relationships between the barrier of fear and the general awareness to traditional/innovative teaching as well as the subscales of teaching approaches and combination of skills.

Among younger and older female teachers, there were significant negative relationships between the barrier of fear and the general awareness to traditional/innovative teaching as well as the subscales of teaching approaches and combination of skills. That is, the higher the fear barrier, the higher the awareness of traditional teaching, and vice versa. Among older female teachers, there were also significant negative relationships between the barrier of self-efficacy and the general awareness to traditional/innovative teaching as well as the subscales of teaching approaches and combination of skills. That is, the higher the level of self-efficacy, the higher the awareness of innovative teaching.

Among men generally, there were significant negative relationships between the barrier of self-efficacy the general awareness to traditional/innovative teaching as well as the subscale of teaching approaches. Among younger male teachers, there were no significant relationships between opportunities and barriers to awareness of changing environment and awareness to traditional/innovative teaching. Among older male teachers, there were significant negative relationships between the barrier of self-efficacy the general awareness to traditional/innovative teaching as well as the subscale of teaching approaches.

The gender issue, male and female teachers, was examined as part of the socio-demographic characteristics of the first part of the questionnaire and its relationship to the main research variables. The rate of female teachers in Israel is significantly higher at all levels of education, particularly in preschools (over 99%) and in primary education (over 85%). This phenomenon exists in most OECD countries. The proportion of male teachers is growing in the higher stages of education, that is, in high school. The proportion of male teachers in elementary schools is approximately 15%, about 21% in junior high schools, and approximately 30% in secondary schools. In Israel, on average, male

teachers are older than women, and the difference is increasing with the education stages. The same phenomenon exists in the OECD average, but the gap between the ages is lower (OECD, 2018). In order to examine the gender differences between the sexes in the main research variables, an independent sample t-test was performed. Table 19 below presents the results of this analysis.

Table 18: Gender differences in the main research variables

Variables	Male N=45		Female N=45		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Awareness to traditional/ innovative teaching	2.05	0.21	2.27	0.50	-2.65**
<i>Teaching approaches</i>	2.24	0.20	2.55	0.66	-2.98**
<i>Combination of skills</i>	2.09	0.16	2.24	0.42	-2.09*
<i>Learning structure</i>	1.81	0.39	2.02	0.56	-2.06*

$p < .05^*$, $p < .01^{**}$

Source; own study - General analysis

The results of an independent sample t-test analysis show that there were significant differences between males and females in the awareness to traditional/innovative teaching and all of its three subscales. There is significantly higher awareness to innovative teaching among women in comparison to men. All analyzed factors and calculated correlation values matter.

There was a significant negative relationship between the teachers' seniority and the awareness of changing environment ($r = -0.21$, $p < .05$). Higher seniority of the teacher is related to lower awareness of changing environment.

Validating the questionnaire, which represents the extent to which the questionnaire is a formal measurement tool, measures what is intended to be measured in

the study, and the extent to which the conclusions and actions taken on the basis of the assessment are indeed appropriate and accurate, is presented in Chapter 4 of the section describing the research tools.

5.3. Results of experimental research

The experiment in this study is a process of examining the veracity of the hypotheses and its purpose is to examine the tasks that raise awareness of traditional education and contemporary teacher education, and their effect on the use of professional knowledge of teachers in varied and interesting ways in Israeli schools, in accordance with the changing environment.

In an experiment, the researchers identify a sample and include it for the population, however, the basic intent of an experimental design is to test the impact of an intervention on an outcome, controlling for all other factors that might influence that outcome. As one form of control, researchers randomly assign individuals to groups. When one group receives a treatment and the other group does not, the experimenter can isolate whether it is the treatment and no other factors that influence the outcome (Creswell, 2014. p. 201). Therefore, the second stage of the results is the experimental research analysis and is carried out on the population of the study population - 90 teachers in total, into two groups: an experimental group and a control group, who were randomly selected- in each of the groups of 45 people. The experimental group is selected according to a mechanism, each second person selected from the list until a group of 45 persons is created. The other people will come into the control group. Random assignment - allows to assume that the groups participating in the experiment are similar before the start of the experiment.

In the experimental group, intervention is activated and its effect on the dependent variable is examined. The experiment allows to isolate the effect of the independent variable and external variables (Kumar, 2014. p. 82-83). The group exposed to normal conditions is a "control group". The groups were measured in the dependent variable before the manipulation, so that a basis for comparison was established between them.

Analysis of the solution data for the innovative tasks received from the respondents are quantitative and qualitative according to methodological criteria for evaluating the solutions. The tasks are analyzed by a group of 5 judges competent to evaluate all solutions in terms of quality and quantity (by calculating standard deviation). The experimental research tool includes tasks that cover the interpretation of the material from a mixed analysis perspective. As a researcher, I designed tasks that are experimental independent variable (ZN2). They have a diverse character and structure, these are:

Task estimation- Independent experimental variable

1. Design in an original way a presentation of messages to a subject of teaching, by choosing any form and methods- Completely open task that meets the criteria of modern teaching and professional knowledge for teachers needed in the modern changing world(T1).

2. Use all materials in your area and methods of action to implement a particular topic in the teaching(T2).

3. Design in an interesting way, implementation of a chosen subject in the field of study, use non-standard didactic methods and materials(T3).

Open and closed tasks that require knowledge, ingenuity but also known methods.

4. Plan to implement a subject of study from the teaching materials of the Ministry, by using any content and information(T4).

5. Edit a message from a particular topic within the curriculum using a familiar teaching method, so that you can imagine what else you can learn(T5).

Closed and open tasks, where schematic activity is first used in the teaching and learning process and needed to implement other alternative solutions that result from teaching knowledge.

6. write an outline of the implementation of the methodological unit containing the teaching content of your subject- Completely closed task based on traditional solutions(T6).

The proposed task series for teachers will reveal real awareness, professional knowledge and characteristics of the school as their workplace. Changes will be

introduced in the form of task solutions that will be analyzed not only in terms of ingenuity (innovative education) or schematically (traditional education), but also in quantitative and qualitative analysis. Each one of the six task was evaluated on a scale of 0-9: a score of 0-3 represent low level of modern function, a score of 4-6 represent medium level of modern function, and a score of 7-9 represent high level of modern function.

The total task score was calculated by the sum of scores of the six tasks, on a scale of 0-54. Thus, the total tasks score was evaluated on three levels of modern function: low (0-18 points), medium (19-36 points) and high (37-54 points). The following is an analysis of results and a detailed interpretation tasks from the experiment

Table 20 presents the distribution of frequency of the score of the tasks by three levels: low (0-18 points), medium (19-36 points) and high (37-54 points). The statistics present the distribution of the general sample, as well as by gender and seniority in the context of professional knowledge and awareness of traditional or modern teaching and the unique characteristics of Israeli schools.

Table 19: Descriptive statistics of tasks score by gender and seniority

			Young teachers		Older teachers	
Women	N	V%	N	V%	N	V%
Low level	5	22.7%	1	8.3%	4	40%
Medium level	15	68.2%	10	83.3%	5	50%
High level	2	9.1%	1	8.3%	1	10%
Total	22	100%	12	100%	10	100%
Men						
Low level	6	26.1%	-	-	6	42.9%
Medium level	15	65.2%	9	100%	6	42.9%

High level	2	8.7%	-	-	2	14.3%
Total	23	100%	9	100%	14	100%

Source: own study

An independent t-test analysis was performed in order to examine the differences in tasks score by gender (the total task score was calculated on a scale of 0-54 and on each task by a scale of 0-9). Table 21 presents the results.

Table 20: The differences in tasks scores by gender

Tasks score	Men N=23		Women N=22		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Total tasks score	23.26	6.54	24.09	7.09	-0.40
Open task	2.87	1.10	2.77	1.19	0.28
Open and closed task	3.98	1.21	4.14	1.29	-0.42
Closed task	4.43	1.12	4.73	1.42	-0.76

Source: own study

The results of an independent t-test indicate that there were differences in the tasks scores between men and women teachers but not significantly. The total tasks score indicates that the level of modern functioning of men teachers (M= 23.26) is slightly lower than the task of female teachers (M= 24.09), this score indicates that the modern level of functioning is low to medium.

The open task score indicating modern functioning among men teachers (M= 2.87) as well as women teachers (M= 2.77) was low.

The open and closed task score indicate that the level of modern functioning of men teachers (M= 3.98) as well as women teachers (M= 4.14) was medium. The closed task score indicates that the level of traditional functioning of men teachers (M= 4.43) as well as women teachers (M= 4.73) was medium. Non-significant relationships (t-test values) were obtained for the solutions of all types of tasks performed by the teachers surveyed. All of the above differences were significant, thus differences in tasks scores by gender are irrelevant. These findings will be further discussed in chapter 6.

Next, the differences in tasks scores were examined again by seniority among men and women teachers. Table 21 presents the results.

Table 21: The differences in tasks scores by gender and seniority

Tasks score	Young teachers		Older teachers		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Men	N=9		N=14		
Total tasks score	25.22	2.22	22.00	8.06	1.16
Open task	3.00	0.70	2.79	1.31	0.44
Open and closed task	4.38	0.54	3.73	1.46	1.28
Closed task	4.67	0.70	4.29	1.32	0.78
Women	N=12		N=10		
Total tasks score	27.58	5.64	19.90	6.54	2.95**
Open task	2.92	1.16	2.60	1.26	0.61
Open and closed task	4.87	1.07	3.25	0.98	3.61**

Closed task	5.17	0.71	4.20	1.87	1.65
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Source: own study; $p < .05^*$, $p < .01^{**}$

The results of an independent t-test indicate that among men, there were no significant differences in the tasks scores between young and older teachers. Differences in tasks scores by seniority among men were insignificant, thus irrelevant. These findings will be further discussed in chapter 6.

Among women, there were significant differences in the total task score ($t(20) = 2.95, p < 0.01$) as well as in the open and closed task score ($t(20) = 3.61, p < 0.01$) between young and older teachers. Among young female teachers, the level of modern functioning in the total tasks score was medium ($M = 27.58$) while among older female teachers it was on the border of low ($M = 19.90$). The level of modern functioning in the open and closed task among young female teachers was medium ($M = 4.87$) while among older female teachers it was on the border of low ($M = 3.25$).

Differences in tasks scores by seniority among women were significant in the total score as well as in open/closed task, thus relevant. Differences in open tasks and closed tasks scores by seniority among women were irrelevant. These findings will be further discussed in chapter 6.

An independent t-test analysis was performed in order to examine the differences in tasks score also by globalization training. Table 22 presents the results.

Table 22: The differences in tasks scores by globalization training

Tasks score	Yes N=6		No N=39		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Total tasks score	36.17	1.83	21.74	4.89	7.08**
Open task	4.50	0.83	2.56	0.94	4.75**

Open and closed task	6.25	0.31	3.73	0.95	6.35**
Closed task	6.67	1.21	4.26	0.93	5.64**

Source: own study; $p < .01^{**}$

The results of an independent t-test indicate that there were significant differences between teachers that did have globalization training and teachers that did not in the total task score ($t(43) = 7.08, p < 0.01$) as well as in the open task ($t(43) = 4.75, p < 0.01$), the open and closed task score ($t(43) = 6.35, p < 0.01$) and in the closed task ($t(43) = 5.64, p < 0.01$). Among teachers that did have globalization training, the level of modern functioning in the total tasks score was medium ($M = 36.17$) while among teachers that did not it was on the border of low ($M = 21.74$). Additionally, among teachers that did have globalization training the level of modern functioning in the open task was medium ($M = 4.50$) while among other teachers it was low ($M = 2.56$).

The level of modern functioning teachers that did have globalization training in the open and closed task was high ($M = 6.25$) while among other teachers it was medium ($M = 3.73$). The level of modern functioning teachers that did have globalization training in the closed task was high ($M = 6.67$) while among other teachers it was medium ($M = 4.26$). The results were similar among men and women: Men and women teachers that did have globalization training had significantly higher modern functioning in all tasks in comparison to teachers that did not have globalization training. In detailed analyzes, significant dependencies (t-test values) were obtained for solving all types of tasks performed by the surveyed teachers. All tasks scores by globalization training were significant, thus relevant. These findings will be further discussed in chapter 6.

5.4. Qualitative analysis of experimental research

The complementary quantitative analyzes resulting from two research procedures have become qualitative analyzes, they are explained "with a deeper understanding of social phenomena, because it was not possible to obtain quantitative data only ... because they do not have one doctrine that is at the basis of all qualitative research". The

ambiguity underlying this study results in the authors of quantitative research studies that treat quantitative research as valuable and less subject to qualitative research.

The opinion, as D. Silverman wrote, "refers to unclear data - suggesting that quantitative data are higher standards in this context ... In addition, qualitative research focuses on long descriptive narratives rather than presenting statistical tables" (Silverman, 2007. p. 59).

Through the research carried out, the wealth and poverty of the teaching profession in the workplace has been discovered. Attention focuses on the individual differences in which ambivalent uses and contrasts are evident. This distinction was included in the presentation of ideas created by individuals, which were the answer to the new situation to which each participant in the study had to deal. For objective reasons, only selected projects are already populated, showing in a way that illustrates the ideas contained in the ideas that indicate the respondents' creativity (Kabat, 2013. pp. 71-72).

Starting with the most original presentation solutions made by the young teachers that are rare and at the same time provide an innovative approach and promise for the future:

1. A.B a young woman teacher, teaching in 3-6 grades, with a seniority of 4-8 years, trained for globalization - T1
2. C.B a young woman teacher, teaching in 3-6 grades, with a seniority of 4-8 years- T3
3. B.V a young woman teacher, teaching in 1-6 grades, with a seniority of 4-8 years- T4

The solution below is done by a young woman teacher, with a seniority of 4-8 years, its mark as A.B who did globalization training., the teacher was asked to design in an original way, presenting messages of a subject, by choosing each format and teaching methods. Its solution to the task 1, combined with the experimental bead writing, which is as follows:

1. Today we will learn about the colors of the rainbow.

A beautiful and interesting natural phenomenon.

Let's look at the video and images of –

Rainbow on a rainy day at sunrise,

rainbow colors in the water drops and soap bubbles
and physical colors in birds.

We will investigate the phenomena through group experiments
and try to explain the phenomena to all students.

Let's summarize what we learned in a flowchart

What did we learn today and how did we learn?

In turn, Young teachers showed a certain ingenuity in exposing their knowledge, awareness and capabilities and offered a symbolic task for a task focused on reconstruction, professional knowledge and creative methods. As an example of an innovative application for Task 3, a young woman teacher, with a seniority of 4-8 years and marked as C.B, was asked to design in an interesting way, implementation of a chosen subject in the field of study, use non-standard didactic methods and materials. The solution is a competitive "track game" through which students learn about a variety of birds as the game progresses:

2.



Figure 6: Solution of Task 3 (T3) performed by a young woman teacher C.B.

Other people from this study group tried to accomplish this task more or less successfully. This was expressed by performance of various posters as follows:

3.



Figure 7: Solution of task 4 (T4) performed by a young woman teacher B.V.

Translation: "Man is endowed with reason and the power to create, so that he may increase that which has been given him, but until now he has not created, but demolished. The forests are disappearing, the rivers are running dry, the wild life is exterminated, the climate is spoiled, and the earth becomes poorer and uglier every day..." (Anton Chekhov - Russian writer and playwright, "Uncle Vania"1899).

Topics: Deforestation, Global warming, Animal extinction, Dehydration of water sources.

In this solution, the young woman teacher (4-8 years of seniority) who marked B.V, used a quote from a famous author and playwright, Anton Chekhov, for planning the implementation of environmental education and students should add lines to quote in their own words according to the topics that interest them. This solution was given to Task 4 in which the teacher was asked to "plan to implement a subject of study from the teaching materials of the Ministry, by using any content and information".

In contrast, the older teachers who made the most innovative solutions made use of their experience, professional knowledge and awareness:

1. B.L an older woman teacher, teaching 3-8 grades, with over 15 years of seniority, trained to globalize - T6

2. A.L an older man teacher, teaching 3-6 grades, with over 15 years of seniority, trained to globalize – T5
3. A.X an older man teacher, teaching 1-6 grades, with over 15 years of seniority, trained to globalize – T3

B.L . is an older woman teacher (over 15 years of seniority) who did globalization training, presented a solution to Task 6, she was asked to write an outline of the implementation of the methodological unit containing the teaching content of subject:

4.

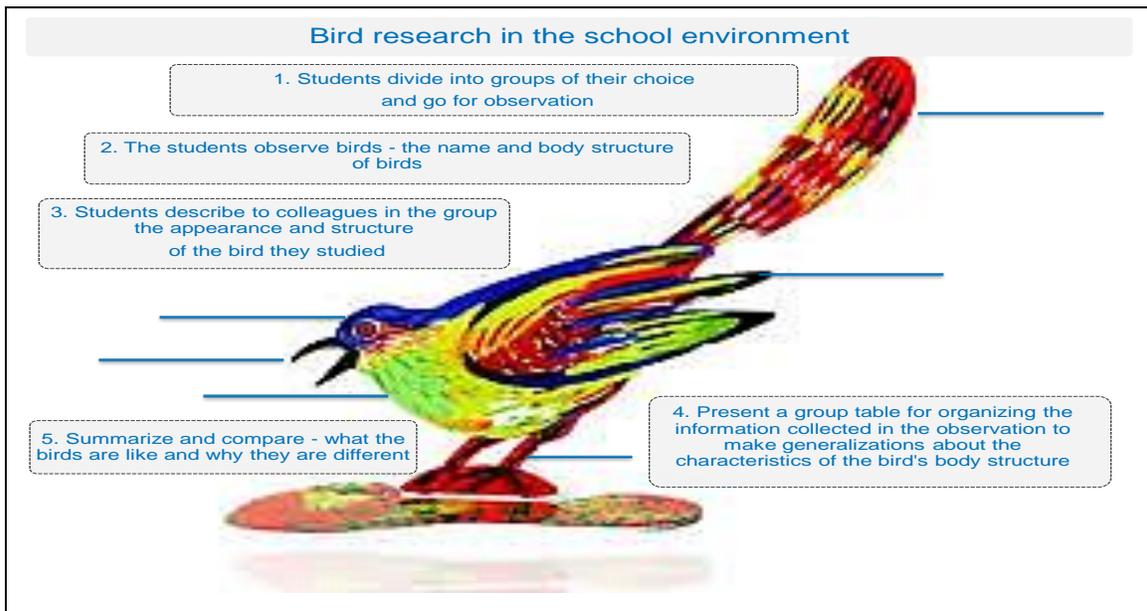


Figure 8: Solution of task 6 (T6) performed by an older woman teacher B.L.

On the other hand, the solutions of the older men teachers. An older man teacher who marked A.L, (over 15 years old) who did globalization training, offered a solution to Task 5 in which he was asked to "plan a specific message from the curriculum topics using familiar teaching methods so you can imagine what else you can learn", starting with brainstorming by "Sun Associations" below and then, sorting out answers to general topics and each group of students explores another topic:

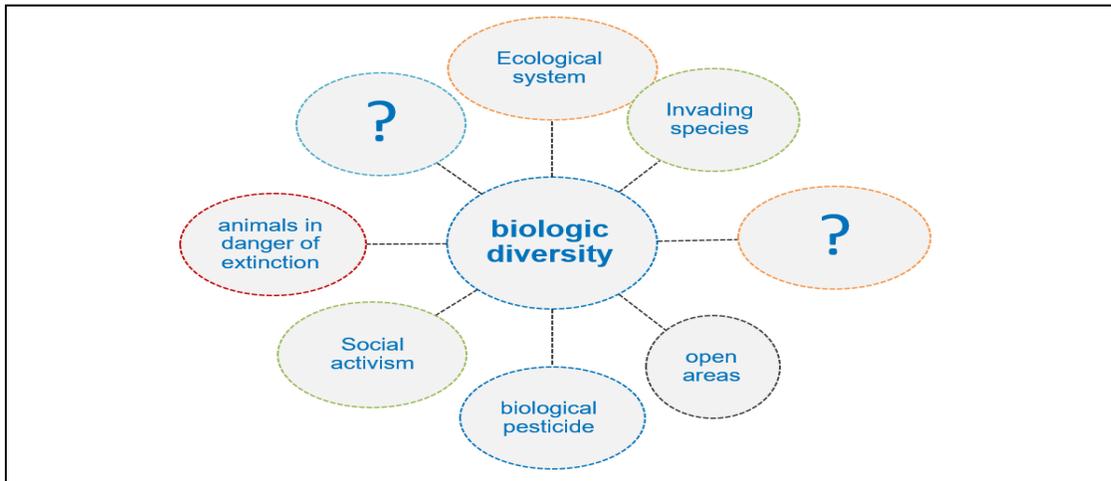


Figure 9: Solution of task 5 (T5) performed by an older man teacher A.L.

5.

A.X. is another teacher, an older man (over 15 years old) who did globalization training who presented a solution to Task 3 - design in an interesting way, implementation of a chosen subject in the field of study, use non-standard didactic methods and materials. His solution is the "surprise box" in which different learning games about animal groups and their characteristics, the games are designed for groups and pupils, students can alternate between them and use them any time or place they choose:

6.



Figure 10: Solution of task 3 (T3) performed by an older man teacher A.X.

On the opposite end of new ideas, there were proposals in a minimal form. They involved traditional knowledge and a lack of ideas for a solution. They were performed by representatives of all studied groups. Both women (young and old) and men. Most often, these were solutions consisting in writing notes on a given topic. In principle, they did not contain any interesting and original solutions, the use of various types of knowledge, possessed abilities or the use of metaphors, symbols, analogies or other elements of creative behavior, facilitating the acquisition of the learned content from the subjects taught. Their awareness was limited to the passive use of knowledge in accordance with the preference of the place in which they are worked. Beneficiaries usually functioned in a schematic way and chose tasks with closed operators:

1. A.H an adult male teacher, teaching in 3-6 grades, with over 15 years of age, trained for globalization - T2
2. A.P an older woman teacher, teaching grades 1-6, with a seniority of 8-15 years - T5
3. D.B An older woman teacher, teaching 1-6 grades, with a seniority of 8-15 years - T6

An older man teacher (over 15 years of age) who marked A.H, who did globalization training, presented a solution to Task 2 in which he was asked to use all materials in your area and methods of action to implement a particular topic in the teaching.

The teacher chose to divide the lesson into three parts and to use in verbal explanation, book and notebook:

1.

Opening the lesson: Explaining the purpose of the lesson - We will learn that water is important for the existence and functioning of the body, the ways in which the body absorbs water and the ways in which the body emits water.

The body of the lesson: Reading a section of information and questions from the book. We will answer the questions together in the plenum and the students will write the answers in the notebook.

Lesson Summary: I will explain to the students what we learned today.

Conclusion: Water can also be supplied to the body through foods we eat. The body emits water in provisions, sweat and exhale.

Figure 11: Solution of task 2 (T2) performed by an older man teacher A.H.

Another older woman teacher (8-15 years senior) marked A.P., presented a solution to Task 5 in which she was asked to edit a message from a particular topic within the curriculum using a familiar teaching method, so that you can imagine what else you can learn. The teacher used homework testing throughout the lesson:

2.

Learning by checking homework that students received in previous lessons:

Each student in turn will present one question he received in homework, and answer it out loud in class, the other students will agree / disagree with him and express their opinion.

After examining all the questions, students are asked to note in a notebook:

Following what you have learned so far, what subjects would you like to study beyond these subjects?

Figure 12: Solution of task 5 (T5) performed by an older woman teacher A.P.

One other teacher, an older woman in the experimental group (8-15 years senior) who marked D.B. presented a solution to Task 6 in which she was asked to write an outline of the implementation of the methodological unit containing the teaching content of your subject.

3.

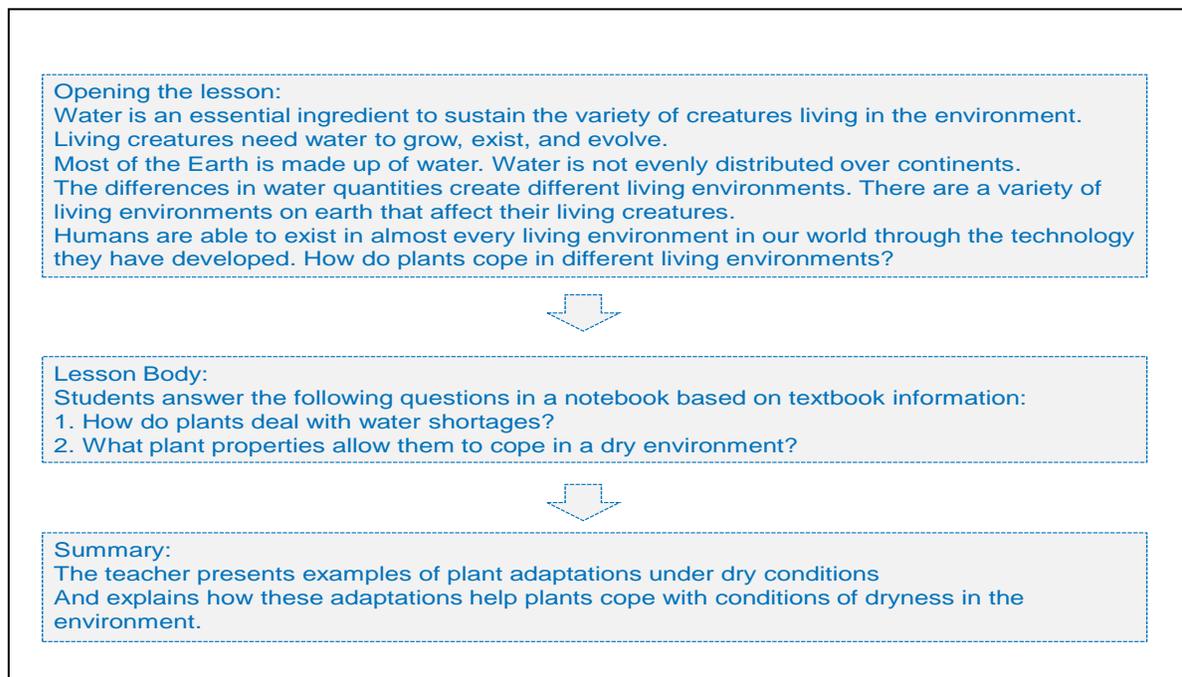


Figure 13: Solution of task 6 (T6) performed by an older woman teacher D.B.

The following is a description of other solutions that teachers answered for the Tasks. The solutions described from best to worst:

- Out-of-class learning through exploration or observation, problem-based learning combined with environmental and technological means
- Presenting lesson messages through an Interactive questionnaire, building a group online presentation for a selected topic
- Presenting lesson messages through group games in class, group structured experiments in class
- Presenting lesson messages through poster, pictures, video, story, song with message which the teacher brought to class
- Presenting lesson messages through a flow chart in various forms
- Presenting the lesson messages by checking written homework in combination with the book or an online homework
 - Presenting lesson messages through book activity, using the classroom board frontally
 - Presenting lesson messages through verbal explanation by the teacher

In summary, in the analysis of the tasks as a whole, the differences between the solutions and the unique components of each solution can be clearly seen in relation to the biographical and personal characteristics of the participants. These characteristics emerged for each participant in a different way through "covert knowledge" and "visible knowledge".

The most diverse and original solutions presented by the teachers in the experimental group were the solutions of the young teachers (1-8 years of age), they showed a certain ingenuity in exposing their knowledge, awareness and capabilities and offered solutions by creative methods. However, the scope of the innovative solutions was small compared to the scope of the other solutions. In contrast, older teachers (over 8 years of age) were less creative, using their experience, professional knowledge and passive awareness. It seems that according to the solutions to the tasks, the long years of seniority of the teachers are associated with lower awareness of the changing environment.

The other solutions, involved "traditional knowledge" and were less diverse. They were conducted by representatives of all the groups investigated. Women (young and old) and men (young and old), most solutions were written on a given topic and contained no interesting and original detail or use of different types of knowledge, without the use of "didactic measures" or other creative symbols or elements, their awareness was passive depending on where they were working and they were more easily engaged in closed tasks.

However, in terms of gender differences, there were significant differences between the solutions of women teachers who were more innovative, and the solutions of men teachers who were less innovative and even traditional. There seems to be a significantly higher awareness of innovative teaching among women compared to men. This finding may also be influenced by the fact that in Israel, on average, male teachers are older women bumps, the difference is increasing with the stages of education.

Beyond what makes each participant unique, common themes arise that form the basis of a general statement. Most of the teachers in the experimental group presented solutions that were not diverse, mixed with traditional knowledge, many solutions were repeated and were standard and well-known. However, it was evident that teachers trained in globalization solved the tasks more innovatively.

5.5. Qualitative analysis of diagnostic tests

The constructivist qualitative analysis offers a vantage point from the natural location of the phenomenon under study and gives it meaning and interpretation in terms that humans use (Denzin & Lincoln, 2000, p. 3), based on the understanding that the purpose of the in-depth interview is to understand the experience and meaning that people attribute to different phenomena in their personal, cultural, and social contexts of their behavior and use that they do in language (Shkedi, 2003. p. 90).

Interview results analysis is the third stage of this study and is based on categorization. That is, dividing the information into parts by different categories / topics through carefully checking the data, and reorganizing the parts into a different analytic order that gives them meaning, the connection between the parts in the different

categories always remains important to understanding the meaning. The analysis steps are:

1. The initial - Dividing data into primary categories as the basis for the following analysis with reference to the place and time context of the phenomenon under study.

2. The mapping - A division into separate sections dealing with the same theme that was excluded from the original structure and sequence of the stories. These sections were merged into a one "family"/category which was given a wider name and organized in a new conceptual order to make possible connections between them. The categories are:

- Awareness of innovative and traditional teaching: 1. Teaching approaches 2. Combination of skills 3. Learning structure
- Awareness of Teacher Function - 1. Cognitive 2. Emotional 3. Social
- Awareness of Professional knowledge - 1. Self-knowledge 2. Personal knowledge 3. Professional knowledge 4. Environmental knowledge 5. Knowledge of others
- Teacher characteristics 1. Personal learning characteristics 2. Environmental learning characteristics
- Opportunities and barriers to awareness
- Opportunities – 1. Breaks 2. School climate 3. Multiculturalism
- Barriers- 1. Self-efficacy 2. Fears 3. Conflicts and dilemmas: Personal, professional, environmental 4. Lack of formal professional development for the changing environment
- Characteristics of school as a workplace of teachers surveyed- 1. Within the school - physical and organizational structure. 2. Outside the school - parents, community and the general public

3. The Focused phase - The construction of the main categories through the identification of the main components in the interviews, which appear frequently and contribute significantly to the explanation of the phenomenon studied and the examination of the relationships between the components.

The investigated cases are presented in the "categorical focused description". In other words, the presentation of the information of the participating interviewees is

according to the main categories identified in the analysis process, using the language of the interviewees and, alongside, the use of theoretical language (Shkedi, 2003. p. 217).

4. The theoretical - A theoretical explanation of the phenomenon based on data analysis. Although the stages of analysis are linearly sequenced and each based on the previous one, there is round-the-clock movement (Shkedi, 2003. pp. 93-110).

In this study, 10 participants from the study population were randomly selected, five from the experimental group and five from the control group for semi-structured in-depth interviews, some of the questions will be pre-determined according to the research topics and some of the questions will come up during discussion.

In-depth interviews have many advantages, the interviewer can evoke honesty and maintain the interest of the respondents, relieve anxiety, repeat questions unintelligible and give explanations if necessary, clarify a response and make observations on how the respondent replies during the interview. All this while taking precautions not to affect the responses, neutrality and documentation of the respondent's exact answers without their interpretation (Getu, & Tegbar, 2006, pp. 57-58).

All analysis documents and the analytical process are retained as a condition for the reliability of the study and some are documented in the appendices section.

The results of the interviews are from science and technology teachers in elementary schools, who teach in Jewish schools in the north of Israel in the Israeli education system, 5 men and 5 women. All teachers are over the age of 18, of different ages and schools, with diverse work experience. Each one is a unique case, they are selected according to

"purposeful sample" that focuses on selecting the interviewees who best represent the population under study and can teach us about the phenomenon under study. 5 teachers from the experimental group and 5 teachers from the control group, each interviewed individually.

Additional features that characterized the appropriate respondents for conducting the interviews were: they did not fear self-disclosure and were prepared in advance to devote the full time required for the study. All of them are highly expressive and able to

answer the questions in a way that expressed their knowledge and professional experience. The following is the description of the selected interviewees:

Interviewees from the experimental group

1. A.D. a young woman teacher, 32 years old, single, a professional teacher especially in grades 1-6, teaches in a religious school with 3 years of seniority.
2. A.F. a young woman teacher, 36 years old, married and mother of two children, a professional teacher in grades 3-8, with 8 years of seniority, trained for the effects of globalization.
3. N. A. an older woman teacher, 42 years old, divorced and a mother of two, professional teacher in grades 3-6, with 17 years of seniority.
4. B.B. a young man teacher, 33 years old, married and father of one child, professional teacher in grades 3-6, with 2 years of seniority.
5. D.H. an older man teacher, 52 years old, married and father of four children, professional teacher in grades 3-6, with over 15 years of experience, holds a master's degree in management, trained for the effects of globalization.

Interviewees from the control group

1. A. A, an older woman teacher, 53 years old, divorced and mother of three children, professional teacher in grades 3-6, with over 15 years of experience.
2. B.I, a young woman teacher, 32 years old, single, professional teacher in grades 3-6, with 2 years of seniority.
3. B.M, a young woman teacher, 33 years old, married, professional teacher in grades 3-6, with 6 years of seniority.
4. A.U, a young man teacher, 34 years old, single, professional teacher in grades 3-6, with a 1-year seniority.
5. C.E, an older man teacher, 47 years old, married and father of two children, professional teacher in grades 3-6, with 16 years of seniority, holds a master's degree in management, trained for the effects of globalization.

Interlocutors from the experimental and control groups listed above were interviewed after the tests. An interesting research material was obtained, which was interpreted due to the categories distinguished below and here is their presentation.

1. Awareness of innovative and traditional teaching

Looking at teachers' statements in interviews about teachers' way of teaching, it can be seen that intuitively, most insist on attributing innovation to their way of teaching, they present an overall picture that they are satisfied with their professional work even though they use a language that describes traditional elements.

From the analysis of the discourse with the teachers, it can be recognized that the teachers indicate that they teach according to a pre-prepared curriculum and work plan, and prefer that the students practice the knowledge, it is evident that in their view the teacher is the main active factor in the teaching-learning and discipline and regular classroom arrangements are important in order for the student to learn properly. Teachers' awareness of innovative and traditional teaching has been identified in the context of: Teaching approaches, Combination of skills, Learning structure

The young teachers from the experimental group indicate that they combine thinking and teaching skills by way of exploration, but only as required in the curriculum.

A.D. a young woman teacher from the experimental group: "I try to incorporate during my classes, research work, the students in the fifth and sixth grades, do research work as required in the curriculum, in the research work I teach the students the research steps in the classroom as part of the lesson, if they do not practice the steps, they will not be able to handle the process alone ... But it is important for me to emphasize that the students are asked to study the background of the research topic independently and, presumably, students are engaged in finding and reviewing information..."

A. F. a young woman teacher from the experimental group which has been trained for the effects of globalization: "In my teaching I teach high-order thinking skills in the research process and in connection with various subjects, according to the curriculum, I test in the program what is the skill to be taught with the curriculum and try to work

according to the curriculum It is important to teach thinking skills it crosses professions and it is important for life"

B.B. a young man teacher from the experimental group: "The curriculum is very busy and I can't always teach all the topics during the year, last year I noticed I didn't have time to teach the "animals" subject in 4th grade and I decided to give the students an independent homework assignment, I communicated with them in a "discussion group" on the Internet in the afternoon, it was a great move, the students were enthusiastic and collaborative..."

However, the older teachers from the experimental group less talk about a combination of thinking skills, they emphasize that they come from a background where the teacher provides optimal information to the students and they are not expected to comment on it.

A.N. an older woman teacher from the experimental group: "I learned everything I know from my teachers who taught me by the way of the old methods and I learned very well, listening is important in the learning process and the teacher has an important and central role in the student learning process ... I now also understand that you can teach differently ...I need to learn how to do it "

A young teacher from the control group talks about her difficulty as an active teacher in the teaching process, she expresses some awareness of her teaching:

B.I. a young woman teacher from the control group: "I feel like I work very hard in the classroom as a teacher, I am active during all the time, I open the class, lets students accomplish a task, I go from student to student and help those who need help, next, I teach them the new concepts and again a classroom assignment, and then I do the summary of the lesson ... That's the right way and it works, so I learned to teach ... "

In contrast, an older woman teacher from the control group talks about the difficulty of integrating technology into teaching as a basic component required in teaching work:

A. A. an older woman teacher from the control group: "I try to incorporate innovation in my teaching, occasionally a video, or a presentation ... you have to understand that I do not come from the generation of computers, I had a very hard time

dealing with the requirement of a computer at first but today I am more friendly with the computer and occasionally bring technology in lessons"

From analyzing teacher interviews, it is evident that teachers have an awareness of traditional teaching due to the difficulty of integrating technology. Very little has been said by teachers that they teach social skills, leadership and multicultural discourse. Only a few, challenge students to learn independently and engage in critical thinking, only few indicates that they incorporate problem-based learning into their lessons or learning through the exploration. There was no discourse about reflective learning or lifelong learning and thinking skills to create new knowledge,

Few of the teachers say that most of their time is devoted to active learning processes, learners' experiences and self-work. In addition, most teachers prefer that students work only in class and during class, only one teacher stated that he teaches according to a flexible curriculum of time and place, specific study topic due to the need to teach the curriculum on time.

There is also a difference between teachers' teaching approaches from the experimental group that indicate a traditional teaching approach but it is important for them to have little understanding of the alternative of innovative teaching compared to the teachers from the control group who do not mention it.

There is also a difference between the young teachers who have more innovative teaching approaches, especially young women in the experimental group, compared to the older teachers, women and men, who have more traditional teaching approaches especially in the control group. Additionally, teachers who have been trained in the effects of globalization, have some awareness of innovative teaching compared to the untrained teachers.

2. Awareness of Teacher Function: Cognitive, Emotional, Social

In analyzing teacher interviews, it was identified the perception of functioning in the cognitive field - the role of the teacher and ways of teaching, in the emotional field - various intelligences and cultural context and in the social field - social interaction.

A.D, a young woman teacher from the experimental group expressing awareness for traditional / innovative cognitive functioning: "I think my job is mainly to teach students new knowledge and to connect it to their daily lives, also to help them if they need assistance ... I do reflection with students at the end of the lesson ... ask students what we learned today? But I don't always find time to this... I study in a "learning community" and using professional sites, it helps me a lot" .

Difficulty and socio-environmental success: "The main difficulty is the work environment in the school, no laboratory, no basic equipment to experiment ... However, the principal believes in my abilities and so I lead the program of "Excellence" and English and Health Communication"

A. F, a young woman teacher from the experimental group, trained for the effects of globalization, expressing awareness of traditional / innovative cognitive functioning: "The teacher today does not have to be knowledge transfer, there is everything on the internet, I also use it ... but we are in schools where the teacher is the authority of knowledge, the culture dictates, the students turn to the teacher every question and the teacher has to answer ... I try to direct my students to sources of information in the tasks I give them"

Innovative emotional functioning: "I feel success every time a child enjoys coming to class, connecting what we have learned to his world, making a change in his life."

The young teachers from the experimental group are aware of traditional / innovative functioning, which is expressed in the fact that they see themselves as the knowledge of the classroom but nevertheless express an understanding of the need for change but do not necessarily express it - actively in the classroom. one teacher is active in a professional knowledge community and the rest is using professional and global knowledge resources. These teachers experience socio-environmental difficulties in transferring material to students but attribute social success to the human school staff.

Also D.H. an adult male teacher from the experimental group, trained for the effects of globalization, aware of the need to change ways of teaching but measures his success and difficulties as a teacher mainly based on elements of the traditional cognitive

field: "I experience success in my role as a teacher mainly as students improve their achievement ... however, I understand that practical learning is important where the students are fully involved in planning, thinking and execution ... I experience new language difficulties for new immigrants" .

In contrast, traditional awareness, for teacher functioning among teachers interviewed in the control group, was found to be higher than the teachers in the experimental group.

B.M. a young woman teacher from the control group, in relation to cognitive and emotional functioning : "...The curriculum is busy and I have to prepare the students for a national exam, it is my responsibility... for me, my success as a teacher is when the students are disciplined, I have control, and also that the children I taught choose to study in a high school science course in the future ... so I realize I did my job"

Emotional and Environmental Difficulty: "My difficulty Is always to learn to contact the students of today ... lack of equipment ... I have no science team"

C.E. an adult male teacher from the control group, trained for the effects of globalization, expresses cognitive difficulty in conveying the material with creativity and its success is manifested in the ability to discipline students: "I feel that over the years it has become increasingly difficult for me to teach the study material. I cannot find the right way to do it so that students will be enthusiastic and interested in what I teach ...another difficulty is lack of equipment, difficulty in creativity ... I have successes ... "I get positive feedback from the school principal about my work. I hold classes very well."

The analysis of the interviews shows that in the cognitive function of the teachers, the interviewees see their role as main in the classroom and less as a guiding teacher, also, most of them do not often teach their students to reflect on the learning process. Some of the teachers talked about cognitive difficulties in transferring the material, especially the need to excite students. on the other hand, some teachers expressed their success in teaching mainly in cognitive functioning. In emotional functioning, teachers rarely base new knowledge on feelings and experiences and various student intelligences. most of them express emotional difficulty in the material transfer and very little success in the emotional field. In social function, teachers do not often engage in social-cultural,

economic and technological content in classes and very few are active members of a professional knowledge community and use up-to-date and global professional knowledge resources. Most teachers expressed socio-environmental difficulties in transferring material to students and little environmental success.

There is a difference between teaching approaches of teachers from the experimental group who express awareness of the needs of students in the innovative teaching approach, compared to the teachers from the control group who do not express it. There is another difference, among the higher awareness for innovative teaching approaches by young teachers, especially young women in the experimental group, and awareness of traditional teaching approaches of the older teachers, women and men in the experimental and control group. Additionally, there is more awareness for the teacher's function adapted to the changing environment, of the teachers who were trained in the effects of globalization compared to the untrained teachers.

3. Awareness of Professional knowledge

The types of knowledge identified in the teacher interview analysis are: Self-Knowledge, Personal knowledge, Professional knowledge, Environmental knowledge, Knowledge of others. The **Self-Knowledge** of the teachers, which was identified from the interview analysis, influenced by personal theory and shaped by past experiences and by the teachers who taught them.

A.D, young woman teacher from the experimental group expresses awareness of self-knowledge and adapt it to students: " I teach the subjects I am committed to teaching from the curriculum but adds to them my understanding and self-philosophy, it is expressed in knowledge, in techniques and teaching methods and I also add what I think needs to be taught as needed I see at the same time in class... I bring myself for teaching, the values I believe in as part of my responsibility to positively influence my students, be more tolerant, caring, involved, considerate. I try to enable a variety of ways of learning even those I experienced as a student and they were significant to me and even those I learned from my colleagues in the profession and during training in the field"

B.I, a young woman teacher, from the control group emphasizes the impact of past experiences on her way of teaching using her critical ability: "My cultural values and

personal beliefs this is what leads me through the teaching work because I believe I need to teach only what I believe in is 100 percent because otherwise I'm lying to myself. the teachers I met over the years, they taught me what to do and sometimes what not to do that is great for me too".

In contrast, D.H, an adult male teacher from the experimental group who did training for the effects of globalization prefer to use prepared material: "Sometimes I read academic publications in education... it can help, I just don't have the patience and time for that... but I do use ready-made teaching units that I take from the Internet and I think that fits to the way of teaching I believe in, I look for what I connect with and not use anything I find ..."

The **Personal knowledge**, in some of the interviewees, explained by the influence of research theories on the teaching work of the teachers also, using pedagogical principles and teaching techniques that are not limited to a particular content domain.

A.F, a young woman teacher from the experimental group who did training for the effects of globalization expresses some innovative awareness of personal knowledge: "In teaching work, I use the techniques and ways of teaching that can be taught both math and art ... I didn't learn that way, so today I think that needs to be changed and taught differently ... "

B.M. a young woman teacher from the control group, aware of the benefit of skill integration but few reading and using research: "I've read studies mostly while I was in college in teacher training and they made a big impact on me ...today I read less, only if I am asked to do so as part of a specific assignment in the course ...in my classes I sometimes teach language skills, because it helps the students in the external test ... "

C.E. an adult male teacher from the control group who did training for the effects of globalization, expresses innovative awareness on this topic but still prefers to use ready-made material: "I use ready-made teaching units that I think were built based on educational theories and they combine different skills, not just experimental skills ... "

However, A.N. an older teacher from the experimental group, not aware of personal knowledge at the same level as the young teachers: "... I have my own personal

knowledge, don't believe in research ...that matters is what you see on the ground, my experience is richer than any research ..."

In the context of **Professional knowledge**, only a few of the teachers interviewed talk about their responsibility to develop among their students' academic Skills and self-capable and only some of them study the subject in depth before teaching their students.

B.B, a young man teacher from the experimental group explains the gap he has in knowledge and tells about his little experience teaching in groups: "I'm not really proficient in all the subjects I teach, I have more to complete in this area ...I try to teach in groups, but in an individual class consisting of five students usually ...I work with the Environmental Trustees Group to promote environmental education in the school, each child brings its strengths, the children are experiencing active and sensory use ..."

A.U, a young man teacher from the control group expresses difficulty in treating all students with best teaching methods: "I have a desire to reach all the students but I can't find the way ...I can't do it because of the size of the classrooms, the number of students is very large ...the biggest difficulty is getting students to understand in depth what they are reading, the children, as in life, are used to getting everything ready, and the school also has to "feed" them with answers and so they avoid self-thinking, sometimes I see that there is a need to work in a particular class on reading a chart or reading a graph and it is clear to me that it will require strenuous work with the students and not necessarily they will understand at the end ..."

Unlike them,

D.H, an adult male teacher from the experimental group who did training for the effects of globalization expresses awareness of in-depth learning and skills integration: "Before I teach my students any subject, I study it in depth, well beyond what students need, In order for me to become proficient enough and know how to avoid misconceptions ... It's important for me to incorporate different thinking skills into teaching"

Like him, A. A, an older woman teacher from the control group expresses awareness of its responsibilities to develop academic skills among its students and self-

capable: "In my experience, students have to be taught how to learn, more than what to learn ...we are responsible for giving them tools for learning, to sort, compare, summarize information from text, Just so, the students, be able to be independent in the future ... "

Environmental knowledge, was identified by most teachers in the context of the school setting, which is limiting and not allowing them to initiate social interaction, collaborations, working in a team and watching the activities of other teachers, but only some teachers expressed awareness and environmental responsibility and a desire to change and enable the capabilities of their students.

A.D, a young woman teacher from the experimental group shows awareness of difficulties but also the use of environmental knowledge and responsibility for the needs of its students: "The load of students in class, occasionally affects the ability to give the appropriate treatment to each student during the lesson and the possibility of performing complex activities or experiences that cannot be performed in a full classroom setting but only in small groups ...in general, working in classrooms with a large number of students makes it very difficult for quality teaching as I see it ...I try to use different spaces for learning ...in the yard, library, computer room, study tour, I have a responsibility for the students and it is important to give every student opportunity to realize their ability...".

B.M, a young woman teacher from the control group expresses awareness of the environmental difficulties but it also presents innovative alternatives: "The problems I'm experiencing are mainly related to system requirements, compared to the time given and the school principal's priorities, there is no time for collaboration with teachers, I work alone, difficulty Available to Students ...but I'm learning different methods to deal with it, especially with a computer and independent assignments for students".

D.H, an adult male teacher from the experimental group who trained for the effects of globalization, aware of the environmental difficulties but does not present ways of dealing with and solutions in the school environment: "school hours have been significantly reduced in the sciences and the curriculum has not been reduced, very large "classes" that do not allow me to reach all students at a significant level of influence and education. to complete my job, I teach many classes, that's an unreasonable number of hours, inhuman! I have the sense of a temporary teacher who meets with a class two

hours a week. parents without parental authority backing their children and we, the teaching staff, have no backup. the field of science is a field that involves a lot of topics ...there is a demand at every event to give our share in the field. when in every school there is usually one teacher who sends his arms like an octopus, in all directions, on the impossible border...despairing".

Like him, A.A, an older woman teacher from the control group, expresses low awareness for innovative use in environmental knowledge: "There are physical difficulties in a small science classroom, large learning groups, external tests that sometimes shorten learning processes due to the need for sufficient material ...it's exhausting, then they all wonder why teachers are lacking".

Knowledge of others was identified by most teachers who said they were interested in the backgrounds and identities of their students and it is important for them to build a relationship with their students:

A.F, a young woman teacher from the experimental group who did training for the effects of globalization: "I have successes in the interpersonal relationship that I developed with my students ...contact with students brings positive learning ...children I manage to "touch" and influence ...

B.I, a young woman teacher from the control group: "Every time a boy or girl enjoys coming to class, as they connect and communicate the content we have learned to their world, that they make some change in their life, to me it's a success"

A. A, an older woman teacher from the control group: "For me, success is not one or the other awards but rather creating a positive attitude in my students towards the science profession. when I get a student who tells me at the beginning of the year "Science is a shit" and in time, he comes first in class, sitting forward with bright eyes, it's a success for me...there are children who come to me as adults after years and say how significant I was to them and that they learned only because of me".

From the interview analysis found there is a connection between, using the various types of knowledge: Self-knowledge, Personal knowledge, Professional knowledge, Environmental knowledge and Knowledge of others, and between teacher

awareness of traditional / innovative teaching. The more the use In the various types of knowledge, is at a higher and more varied level, so the awareness of innovative teaching is higher and vice versa, low and less varied use of knowledge types, is associated with higher awareness of the teacher of traditional teaching.

Most interviewed teachers express low awareness and less diversity to the various types of knowledge. Young teachers more awareness of personal knowledge and self-knowledge compared to adult teachers, women and men. Older teachers of both sexes more aware of professional knowledge compared to the young teachers. Most teachers expressed awareness of school environmental knowledge as a framework that limits their work, but older teachers express lower awareness for use in environmental knowledge compared to the younger teachers, women and men. Additionally, most teachers expressed awareness to a certain extent to others' knowledge regardless of men and women, young and old. Teacher knowledge depends on the different learning characteristics of the teachers presented in the following analysis.

4. Teacher characteristics

Teacher learning characteristics were identified in teacher interviews according to: Personal learning characteristics and Environmental learning characteristics. Personal learning characteristics include: emotions, feelings, thoughts, experiences, reflection, diversity in teaching methods and response to various.

A.F. a young woman teacher from the experimental group who did training for the effects of globalization, was good at expressing high awareness for the influence of emotions and feelings about her learning and teaching as a teacher: "...I believe that every teacher brings himself as a person, his feelings and beliefs for teaching, all the baggage and experience he gained in his life, the same goes for me, my beliefs help me prioritize, in the way of thinking and the transfer of knowledge... of course this has a significant impact on my teaching, in setting priorities, with the desire and ability to see every student, even in my world view of transmitting scientific knowledge, for example, if I believe that God created the world, I won't ignore that fact when I explain to students about Darwin's evolution ..."

A.N. an older woman teacher from the experimental group: "... My cultural values and personal beliefs leading my teaching, because I think I have to teach just what I believe in 100 percent, otherwise I'm lying to myself ...I have different students in the classroom but I plan for the average class knowledge, I can't match everything I teach, to all the students, it's impossible"

A.U. a young man teacher from the control group: "...I remember that I was influenced from the behavior of my teachers, I learned to give and help a lot and increase my contribution to others not just my students, both my parents or my co-workers other school subjects too. I still remember myself as a student and it still seriously affects me and in my teaching approach ... today my learning is less experiential ...mostly boring learning ..."

In contrast, C.E. an adult male teacher from the control group who did training for the effects of globalization, refers to the curriculum as a more influential component of his teaching: "... the personal beliefs, the cultural values, my political and social beliefs affect me and in my thinking about teaching, but in the end I have a plan to teach which dictates much more to my work ... I'm trying, but I have no time and ability treat everyone in the classroom in each lesson"

The learning processes of the teachers were identified in the teacher interviews also according to environmental characteristics which include: interaction with other teachers and teamwork, interacting with students, belonging to a "learning professional community", peer learning and integrating multicultural discourse into the learning process.

A.D, a young woman teacher from the experimental group: "... as a new teacher, I had to use new ideas from other teachers I know, it helps in the acquisition of teaching materials and more knowledge, also for teaching ways, there are also some learning groups on social networks that I use, Facebook group or Watt sap ...unfortunately there is no time for that inside the school, in most cases, we do not find time for joint meetings and I don't visit other classes to learn from others ... too bad ..."

D.H, an adult male teacher from the experimental group who did training for the effects of globalization:" It is important to consult others in staff or colleagues that I meet

in training courses, for most, I'm not doing so, I have enough years of experience ...it is worth studying in a team but in school reality this is not happening, I'm a single science teacher, I don't have a team and I don't watch other teachers' lessons"

B.I, a young woman teacher from the control group: "... the teacher has to work in pairs, in the classroom too, it is important that students work in pairs ...we live in a society and not in a bubble ... ideas from colleagues open to me the benefits and importance in Peer Teaching"

A.A, an older woman teacher, from the control group: "Today we talk about that learning is social? so why doesn't it happen at school? In my school, there are many social events but learning does not take place socially, everyone learns with themselves"

Among women and men, young and old, the interviewed teachers seem to be aware for personal impact, their emotions, feelings, thoughts and cultural values, on their way of learning, more than the environmental impact. on the other hand, it is evident from the stories of the interviewees that they are not learning in a variety of ways and in an experiential way and they are not persistent to adapt their teaching, to the personal needs and the differences between the students. Additionally, it is evident that the language used by teachers included traditional concepts such as, "knowledge transfer" from the teacher to the student and the perception that the teacher is at the center of the class. Unlike personal learning characteristics, young teachers told that they use more of the characteristics of environmental learning compared to older teachers. but only a few of the teachers spoke in detail about the environmental learning characteristics, some support working with couples, groups and learning teams assuming that learning is social, but not necessarily agree with that they acquire different skills while working in a team, the teachers complain that they do not learn by watching in the activities of other teachers and only two of the teachers said that they use ideas from colleagues. The more teachers' learning less affected from personal and environmental characteristics, the less their awareness of innovative teaching is lower.

In this context, have been identified various opportunities and barriers for learning awareness in the school environment.

5. Opportunities and barriers to awareness:

In analyzing the interviews, different opportunities were identified that may help to develop teacher awareness in the school environment, such as: School breaks, School climate and Multiculturalism in the school population.

A.F, a young woman teacher from the experimental group who did training for the effects of globalization, introduces the break and multiculturalism as an opportunity but also the school as a limiting place: "I'm a new teacher ...I don't know the school in depth and can't find time to do things beyond teaching ...except during breaks, which I take advantage of ...it is a building within a city, no open spaces, no equipment and regular rooms to study science, closed too much and does not allow us to open to the environment ...I try to use every corner of the school and my autonomy, I have no pressure like an outside test on my head. I choose to teach what interests me or interest my students ...I have Russian students, Ethiopians and even from the Arab sector, this is important to me and to the students as well, to get to know different cultures and be patient with everyone ...".

B.B, a young man teacher from the experimental group also refers to the school as a non-allowable place: "my school does not provide a suitable framework for values education ...at least you can take advantage of the breaks to assimilate responsibility, caring, respect ...at my school no connections with factors outside the school and there's no team working together, I'm quite alone ...".

D.H, an adult male teacher from the experimental group who did training for the effects of globalization, indicates that multiculturalism is an advantage but also talks about a restrictive system: "Classrooms are heterogeneous and there is cultural and cognitive diversity ...on one hand, it is a social contributor and on the other hand, it makes teaching difficult ...my school structure is closed but it does allow some freedom of action and I have the opportunity to respond for the needs of my students, to design a learning center, schedule a conference or collaborations with other teachers, this is only possible during my free time and especially during breaks ...no other time, the system does not allow teamwork, we don't have shared hours in the system".

B.I, a young woman teacher from the control group, indicates freedom of action and use of spaces: "My school in a city, new building ...school's principal gives me freedom of action, I'm pretty independent and that gives me time to lead a "green school", to participate in the "Space and Astronomy Quiz," take care of the study garden and establish new learning environments".

B.M, a young woman teacher from the control group, also uses the school environment: "Teachers today work many hours beyond teaching hours but if the school principal allows me autonomy, I feel less pressure ...I have more time for each student, I divide my time as I see fit and I can do more ...I use the library, in the sports hall and in the school yard".

A. A, an older woman teacher, from the control group, does not see the school as a restrictive environment and introduces heterogeneity as a disadvantage: "My school similar to school that I myself studied ...building inside a city... normal School...today is harder to maintain discipline among students who come from different cultures, I try to create behavioral discipline because the manager trusts me, it's also an opportunity to get to know students and teachers".

From the interview analysis found that men and women, young and old teachers, agree with the fact that school breaks allow exploring school culture and with that, a climate of open school and providing professional autonomy for teachers, encouraged

Awareness for the needs of the students and a teacher's initiative to make school changes. However, teachers from the experimental group emphasized that the existing school setting limits their work more than the teachers from the control group, who saw school as allowing more autonomy. Only teachers who were trained in globalization told that heterogeneous multicultural framework encourages cultural and social awareness of teachers and students. In general, young teachers, women and men, showed higher use of the school environment compared to adults, women and men. The same teachers also presented barriers to school awareness.

Various **barriers** were identified in the teacher interviews, and were expressed in Self-efficacy, Fears, Conflicts and dilemmas- Personal, professional, environmental,

Lack of formal professional development for the changing environment. These barriers may inhibit teacher awareness.

A.F, a young woman teacher from the experimental group who did training for the effects of globalization: "... There are things I learned in college and I don't apply in the classroom, for example, I choose not to take the students on a study tour ... what if a child falls or will something happen to him? what will I do?... working in groups is dynamic and a little noisy, if there is no quiet in the classroom and learning is noisy, so they will tell you that you don't "hold" the class, if students learn through play, so they will tell you why are they playing instead of learning? ...my biggest difficulty is in the transfer of knowledge or how to teach teaching skills correctly There is a problem, am I supposed to keep students always quiet? ... and what about active student learning? ... "

B.B, a young man teacher from the experimental group: "When I entered the school, I knew I would do everything I think and believe in it, other and different things ...but school reality has changed my thinking, you adapt yourself to the environment and reality, discipline, class order, attitude to students, frontal teaching ... You don't want to be different Your dilemmas are in most cases due to the time limit ... I Know I can do everything but in practice, I don't... I sometimes wonder if I will use new teaching styles, how will I know that students are achieving well? "

D.H an adult male teacher from the experimental group Who did training for the effects of globalization: "I've been teaching for many years in the education system, I see that today's generation is more difficult and I can't always handle it, sometimes I go crazy ...on the one hand, they talk about experiential and active learning and on the other hand, assessment and tests are needed which are a difficulty, this leads us to frontal lessons. "

B.I, a young woman teacher from the control group: "... I have many dilemmas in teaching planning integration of skills in the research process to teach all the material in the best way, in contrast, teaching the material in a limited time, two hours every week In the end, you measure up how much did you teach in time and achievements"

B.M, a young woman teacher from the control group: "When I was in college, I have experimented with different ways of teaching, I'm always ready to renew, at school, I'm more worried, I don't know how anything innovative I would do with the students

will be accepted by the management and also among the parents, they are increasingly involved and interfering and influencing...The desire to reach all students it is impossible because of the size of the classrooms"

A. A, an older woman teacher from the control group: "I have no contrasts and dilemmas at all ...I have a lot of experience and I know what's expected of me. The problem is, I feel that teachers do not trust enough and hence, they don't do everything they dream to do with the students ... "

From the words of the teachers all, women and men, young and old, they do not do at the lessons, everything they want and believe, due to various fears and that the contemporary teacher in their eyes is the authority of knowledge. The contradictions and dilemmas in the world of teacher knowledge are mainly due to the school environment and less cognitive. A barrier of high fear indicates a high awareness of traditional teaching. It is evident that teachers who have been trained globally, express less a barrier of fear and the self-efficacy barrier, this indicates awareness of innovative teaching. Among young women, the barrier of fear was repeated in the context of teaching approaches and skills integration, however, However, older men and women teachers, insist that they have no contrasts and dilemmas, on the other hand, they expressed dilemmas in their words covertly. Additionally, the self-efficacy barrier repeated more than the young teachers.

Teachers awareness of the school environment also examined in the context of school characteristics.

6. Characteristics of school as a workplace of teachers surveyed:

Characteristics of the school identified from teacher stories as positive and negative concerning internal environmental components- physical and organizational structure and external environment components- parents, community and the general public

A.D, a young woman teacher from the experimental group refers to the physical and environmental limitation of the school as negative and the manager's attitude as positive: "The school building is in a city, without open spaces, no basic equipment for

experience, there is no laboratory, on the other hand, I have a research program with the college, that I love very much, the computer program introduced to the school is very important and personally the manager believes in my abilities and it gives me motivation"

Also, A.F, a young woman teacher from the experimental group that did training on globalization effects tells about the environmental and physical limitation but presents the people at the school as emotionally supportive: "My school is in a city and the urban structure, it is very difficult to study in the natural environment ...the routine sometimes breaks down, shows, events ...almost, there is no equipment and room for science study, but I have to say that the place supports ... my friends and people I connect with"

In contrast,

D.H, an adult male teacher from the experimental group who did training for the effects of globalization perceives the physical and social structure as negative: "There seems to be a willingness to see everyone and the school is in an amazing landscape environment and there is potential for activity in the environment, but in practice, it's a closed structure, it bothers me the negative attitude to equipment and property and the team doesn't really work together, everyone for himself, I work with other teachers outside the school "

The teachers from the control group tell about the ingredients that affect them personally more than components affecting teaching. B.I, a young woman teacher from the control group: "The monthly salary is not rewarding, I don't have a lab room, I have good friends at school and the advantage is that the school is small "

B.M, a young woman teacher from the control group: " Demanding work, lots of working hours and many hours of learning, good teaching staff, similar to the school I attended myself, so I'm comfortable ...I share outside factors, for example, we conducted an exploration process in collaboration with a factory located near the school"

A. A, an older woman teacher from the control group: "I have a lot of seniority with a relatively low salary it's hard to cope with today's generation, intervening parents, using phones, the students are more impertinent, I feel like the management is collapsing,

there is no discipline policy, I feel like year after year I try more to create behavioral discipline and without success"

Young women teachers from the experimental group, express environmental awareness concerning negative physical-organizational characteristics (closed structure, lack of equipment, routine breaking) that affect their teaching work and in the context of the social issue (the staff team) they presented as a positive characteristic. Unlike them, older male teachers from the experimental group, present the physical-organizational characteristics as negative, but also the emotional and social characteristics were presented as negative.

Teachers of both sexes, young and old, do not make much use of environmental components during their work and occupy the workplace traditionally. Additionally, the control group teachers, men and women, young and old, pay more attention to the elements that affect them personally, both negatively: salary, workload, lack of discipline, and positively: comfort and a familiar place from the past which indicates awareness of traditional teaching when the teacher is centered on teaching.

Out-of-school characteristics presented among the older teachers in both groups, as negative (parents), in contrast, young teachers and teachers who have been trained in globalization pay attention to extracurricular impact as a positive characteristic (other teachers, factory, college).

In conclusion, the results from the interviews show that older teachers have a lower awareness of innovative teaching. There were also significant differences between women and men in awareness of traditional / innovative education, there is a significantly higher awareness of innovative teaching among women compared to men and among young women, teachers' awareness of innovative teaching is higher than older women teachers. Also, teachers who have been trained for globalization have a higher awareness of innovative teaching but in most cases do not apply innovative teaching in daily life.

In general, it was found that the teachers interviewed insisted on presenting their teaching as innovative, although in practice, they use a language that describes awareness of traditional teaching.

5.6. Analysis of the test results as final tests in a controlled procedure

The fourth and final stage in the analysis of the study results will include the results of the author test. The purpose of the test is to test the effect of the intervention on the participants and to complete the study. The test is part of the final examination of the planned procedure that indicates full research. According to a postpositivist worldview in experimental research, measurements should be made before and after the intervention, in this scenario, the researcher examines theory and collects data to support or refute the hypotheses. Data are collected using a test applied to the experimental group and the control group. And the information can be analyzed using statistical tools that are quantitative and / or qualitative, for the purpose of testing research hypotheses (Creswell, 2014, pp. 48-97).

Initially, five tests were individually reviewed by five teachers and corrected as needed, and then passed on to participants. The answers included in the final test answered by 90 teachers surveyed in the first phase (50% men and 50% women), all from the Jewish sector, teach in Jewish elementary schools in the north of Israel in the Israeli education system, all teachers with science and technology training certificate, men (50%) and women (50%) of different ages (over 18), having diverse work experience. The age of study participants is over 18 years of age. Each participant fills a test individually. The full tests have been documented and analyzed according to the following main topics: Professional knowledge, Self and Personal knowledge, Professional activities, Awareness of applying knowledge, Barriers, Knowledge of colleagues and students, Knowledge of the environment and school.

The test includes 22 questions in the various fields and participants were required to answer the following options: Yes, don't know, no. Each one of the questions was evaluated on a scale of 1-3: 1-no (low awareness), 2-not know (medium awareness), 3-yes (high awareness). Table 23 below presents the questionnaire's variables.

Table 23: Final test measures

Subject of teaching; range of knowledge	Question number	Scale	Reliability (Cronbach
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			Alpha)
Professional knowledge	5, 13, 15	3-9	0.48
Self-personal knowledge	3, 7, 9, 6	4-12	0.83
Professional activities	1, 8, 10	3-9	0.58
Awareness of applying knowledge	2, 11, 14	3-9	0.45
Barriers	4, 12, 16	3-9	0.46
Knowledge of colleagues and students	21, 19, 17	3-9	0.87
Knowledge of the environment and school	18, 20, 22	3-9	0.38

Source; own study - General analysis

Table 24 presents the distribution of means of the awareness measures and t-test statistics for the differences between the experiment and control groups.

Table 24: Awareness differences by research group

Category	Experiment N=45		Control N=45		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Professional knowledge	7.91	1.23	6.51	1.77	4.33**
Self-personal knowledge	11.35	1.24	9.86	2.49	3.58**
Professional activities	7.77	0.92	6.73	1.80	3.45**
Awareness of applying knowledge	7.97	1.17	7.00	1.90	2.97**
Barriers	8.73	1.09	7.55	1.21	4.82**

Knowledge of colleagues and students	6.37	2.65	6.02	2.50	0.65
Knowledge of the environment and school	6.73	1.38	5.35	1.70	4.20**

Source; own study - General analysis $p < .01^{**}$

The results of an independent sample t-test analysis show that there were significant differences between the experimental group and the control group in the awareness to professional knowledge ($t(78) = 4.33, p < 0.01$), self-personal knowledge ($t(78) = 3.58, p < 0.01$), professional activities ($t(78) = 3.45, p < 0.01$), applying knowledge ($t(78) = 2.97, p < 0.01$), barriers ($t(78) = 4.82, p < 0.01$) and knowledge of the environment and school ($t(78) = 4.20, p < 0.01$). There is significantly higher awareness in these categories among the experimental group in comparison to the control group. However, there were no significant differences between the experimental group and the control group in the awareness to knowledge of colleagues and students.

Thus, all of the above awareness measures differences between the experiment and control groups are relevant, except for knowledge of colleagues and students where $t = 0.65$. These findings will be discussed in chapter 6.

Table 25 presents the distribution of means of the awareness measures and t-test statistics for the differences between gender and seniority groups.

Table 25: Awareness differences by gender and seniority

Categories	Experiment group N=45				Control group N=45			
	Young men N=9	Older men N=14	Young women N=12	Older women N=10	Young men N=12	Older men N=10	Young women N=12	Older women N=10
Professional knowledge	7.77 (1.09)	8.14 (1.16)	7.83 (1.11)	7.80 (1.68)	7.25 (1.76)	5.70 (1.25)	7.83 (1.11)	7.80 (1.68)
t-test score	-0.75		0.05		2.32*		0.05	
Self-personal knowledge	11.88 (0.33)	10.78 (1.62)	12.00 (0.00)	10.90 (1.44)	10.91 (1.92)	8.30 (3.02)	12.00 (0.00)	10.90 (1.44)
t-test score	1.99*		2.64*		2.46*		2.64*	
Professional activities	7.55 (0.72)	7.50 (0.94)	8.16 (0.83)	7.90 (1.10)	7.75 (1.76)	5.70 (1.94)	8.16 (0.83)	7.90 (1.10)
t-test score	0.15		0.64		2.59*		0.64	
Applying knowledge	7.66 (1.41)	7.85 (1.29)	8.50 (0.90)	7.80 (1.03)	7.33 (2.05)	6.80 (1.98)	8.50 (0.90)	7.80 (1.03)
t-test score	-0.33		1.69		0.61		1.69	
Barriers	9.00 (0.00)	8.57 (1.15)	9.00 (0.00)	8.40 (1.89)	8.16 (1.02)	6.40 (0.84)	9.00 (0.00)	8.40 (1.89)
t-test score	1.10		1.10		4.34**		1.10	
Knowledge of colleagues and students	8.11 (2.02)	6.14 (2.17)	5.33 (2.93)	6.40 (2.98)	5.83 (2.62)	6.40 (2.50)	5.33 (2.93)	6.40 (2.98)
t-test score	2.17*		-0.84		-0.51		-0.84	
Knowledge of the environment and school	6.44 (0.88)	6.07 (1.26)	7.83 (1.46)	6.60 (1.17)	5.41 (1.83)	4.50 (0.84)	7.83 (1.46)	6.60 (1.17)
t-test score	0.76		2.14*		1.45		2.14*	

Source; own study - General analysis $p < .05^*$, $p < .01^{**}$

The results of an independent sample t-test analysis show that among the **experimental group** there were significant differences between young and older men in the awareness to self-personal knowledge ($t(22) = 1.99, p < 0.05$), as well as in the awareness to knowledge of colleagues and students ($t(22) = 2.17, p < 0.05$). There is significantly higher awareness among young men to self-personal knowledge ($M = 11.88$) and knowledge of colleagues and students ($M = 8.11$) in comparison to the awareness of older men to self-personal knowledge ($M = 10.78$) and knowledge of colleagues and students ($M = 6.14$).

Additionally, there were significant differences between young and older women of the experimental group in the awareness to self-personal knowledge ($t(21) = 2.64, p < 0.05$), as well as in the awareness to knowledge of the environment and school ($t(21) = 2.14, p < 0.05$). There is significantly higher awareness among young women to self-personal knowledge ($M = 12.00$) and knowledge of the environment and school ($M = 7.83$) in comparison to the awareness of older women to self-personal knowledge ($M = 10.90$) and knowledge of the environment and school ($M = 6.60$).

Among the **control group**, there were significant differences between young and older men in the awareness to professional knowledge ($t(21) = 2.32, p < 0.05$), self-personal knowledge ($t(21) = 2.46, p < 0.05$), professional activities ($t(21) = 2.59, p < 0.05$) and barriers ($t(21) = 4.34, p < 0.01$). There is significantly higher awareness among young men to professional knowledge ($M = 7.25$), self-personal knowledge ($M = 10.91$), professional activities ($M = 7.75$) and barriers ($M = 8.16$), in comparison to the awareness of older men to professional knowledge ($M = 5.70$), self-personal knowledge ($M = 8.30$), professional activities ($M = 5.70$) and barriers ($M = 6.40$).

Additionally, there were significant differences between young and older women of the control group in the awareness to self-personal knowledge ($t(21) = 2.64, p < 0.05$), as well as in the awareness to knowledge of the environment and school ($t(21) = 2.14, p < 0.05$). There is significantly higher awareness among young women to self-personal knowledge ($M = 12.00$) and knowledge of the environment and school ($M = 7.83$) in comparison to the awareness of older women to self-personal knowledge ($M = 10.90$) and knowledge of the environment and school ($M = 6.60$).

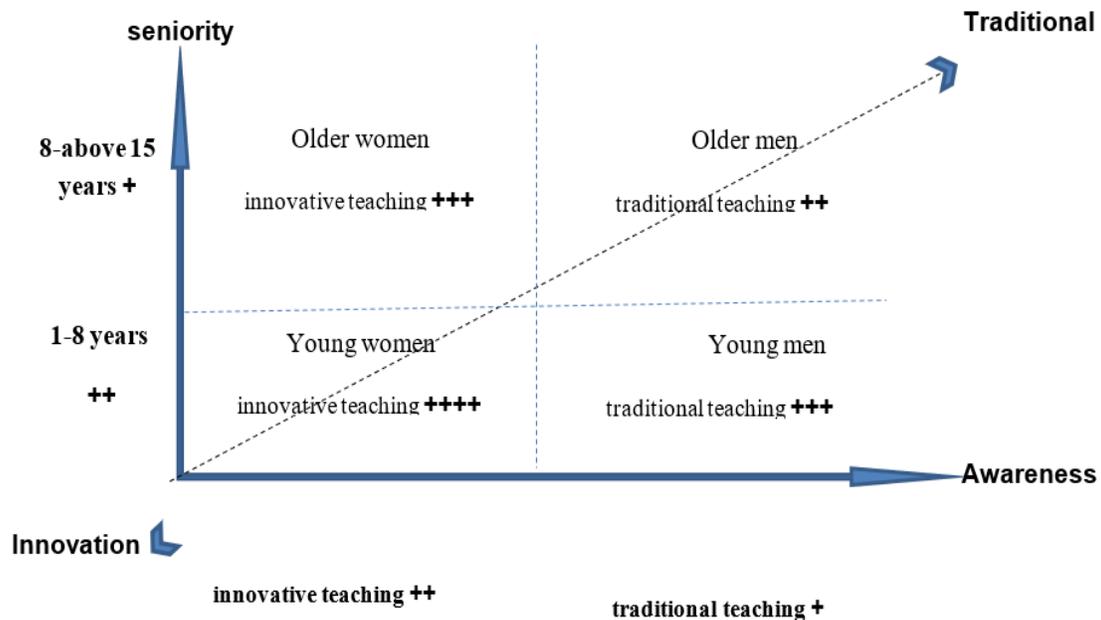
Tasks combining information, e.g. The last element that was performed was the calculation resulting from the sex of the teachers surveyed

It is important to mention that the differences in the awareness measures were examined by gender. The results of an independent sample t-test analysis showed that among the **experimental group** there were significant differences between men and women in the awareness to professional activities ($t(43) = -1.95, p=0.05$) and in the awareness to knowledge of the environment and school ($t(43) = -2.73, p<0.01$). There is significantly higher awareness in the awareness of women to professional activities ($M=8.04$) and knowledge of the environment and school ($M=7.27$) in comparison to the awareness of men to professional activities ($M=7.52$) and knowledge of the environment and school ($M=6.21$). The results of an independent sample t-test analysis showed that among the **control group** there were no significant differences between men and women in the awareness measures.

Thus, it is important to highlight that the most relevant measure of awareness, in terms of the awareness differences by gender and seniority, was self-personal knowledge. Another relevant measure of awareness was knowledge of the environment and school. The measure of applying knowledge is not relevant in terms of the awareness differences by gender and seniority. These findings will be discussed in chapter 6.

All t values have meaning and the other without meaning - to chapter 6. In conclusion, the results of the research tool were found that long years of seniority of a teacher indicate lower awareness of innovative teaching. Significant differences were also found between female and male teachers in awareness of traditional / innovative education, there is a significantly higher awareness for innovative teaching among women compared to men. Among young women teachers, awareness of innovative teaching is higher than older women teachers, As follows:

Figure 14: Description of the differences in awareness of traditional/innovative teaching by gender and seniority



Source; own study

According to the illustration, it can be seen that young women teachers have a combination of 1-8 years of seniority and a high awareness of innovative teaching, therefore, they are marked by the higher number of ++++

Young male teachers have a combination of 1-8 years of seniority but with traditional teaching awareness, so they are marked by a moderate number of +++

Older women teachers have a combination of 8-over-15 years of seniority with innovative teaching awareness, so they are marked by a moderate number of +++

Adult male teachers have a combination of 8 - over 15 years of seniority with traditional teaching awareness, so they are marked by the lowest number of ++

In addition, the teachers who were trained in globalization, are very few in relation to the population of teachers examined and they have a higher awareness of innovative teaching but in most cases, they say they don't apply innovative teaching in everyday life because they are a minority in the system.

As a summary of all completed studies, the results obtained from the conducted experimental and diagnostic tests were preceded by conducting pilot tests. A selected group (5 people) was selected from the selected research group, who underwent all stages of the planned research steps. It gave insight to conduct corrections in research tools, determined the time and conditions for conducting research, remembering about ethical behavior.

6. Analysis of own research results

6.1. Results and model of teacher's professional knowledge and awareness in the workplace – research project

According to the dictionary approach, the application is "understanding, conclusion presented to the solution of previously made decisions", and is also "a mental process on the fact that on the basis of statements recognized as true comes to the recognition of a few theorem, deriving them on the basis of logical laws in accordance with the relevant rules of these statements recognized". These sentences, recognized, contributed to empirical conclusions, which were based on an indication of mutual interdependencies between the analyzed features. They have become the foundation for introducing novelty to the existing reality, and have laid the foundations for constructing a research model of completed verifications (Kabat, 2013. p. 385).

Two-stage verifications carried out allowed the collection of significant research material. It was used to receive varied results based on which discussions were conducted and conclusions were formulated. They cover three parts of the dissertation which allow to draw the following conclusions;

- from theoretical considerations,
- from empirical research,
- creating a model taking into account the teachers' professional knowledge and awareness to be a tool for improving and changing the teaching profession that adapts to the changing world.

Here are the recommendations from theoretical considerations:

1. Today's education and teacher education are facing the problem of condensing education and opening it up to various services, creating educational standards, as well as the struggle for the dehumanization of human education.

This conclusion is supported by the approach of many scholars who believe that modern changes fundamentally change the learning conditions and personal space of teachers and naturally influence teacher knowledge and awareness. Globalization brings

with it a demand for new needs that are contradictory, such as: computer technology and explosion of knowledge versus the teacher as a source of knowledge, local curricula versus international and multicultural realities (Resnick, 2007. pp. 44-47). Collaborative versus individual, global reality requires collaborative knowledge creation. The teacher is required to be an active member in a professional knowledge community in his professional lifestyle, to open his work for peer feedback and training processes and to use up-to-date and global professional knowledge resources (Sergiovanni, 1998. pp. 576-595). Multiculturalism that focuses on variability as value versus variability as disadvantage, access to social knowledge creates a multicultural discourse between different people and groups, a fact that emphasizes the need in teacher awareness to Diversity and the Cultural Context (Shner, 2010. pp. 17-44). Open versus closed learning structure, awareness of issues such as, visible and hidden identity, active presence and passive presence, consciousness of the learning space, time consciousness and lesson structure, online work routine, and time management ability (Shore & Freire, 1990, pp. 105-126; Shner, 2010, pp. 17-44). Being able to learn and teach in changing reality is a challenge that requires dealing with the complexities of modern reality and the multiplicity of components and the many interactions which are tangled in it, this is how a load of information is created, irrelevant knowledge and difficulty in predicting results due to multiple benchmarks for performance evaluation (Morgenstern., Et al., 2019, pp. 199-210). So does the transition from disciplined to interdisciplinary, today's education aspires to be multi-applied knowledge, so it cannot be detached from the fact that it is multidisciplinary knowledge that draws from all fields of science and technology. The boundaries between social sciences, behavioral sciences and educational sciences are not rigid which is why they are called multidisciplinary, it is also possible that they will overlap. In determining attitudes in education, some considerations are taken from various fields (Pasternak, 2002. pp. 1-12).

Alongside that, human spirit depletion, cultural shallowness and cultural crisis and severe values crisis, danger to humanistic education based on ideals of liberty, equality and universal justice, alienation of caring and lack of morals, foregoing the experience of educating, and settling in helping young people fulfill their individual goals (Ideolovich, 1997, pp. 81-91). An overall reference to education that does not distinguish

between its parts misses the goal, and is largely void of educational, social and even economic content (Blas and Shavit, 2017, pp. 6-14). Against this background, the importance of seeing the "big picture" is prominent (Hanin, 2007. pp. 36-39), by developing a broad pedagogical awareness in the teaching planning of teachers which will help teachers to understand their role and change the traditional classical paradigms in which they are prisoners to change and integrate.

2. Education tries to overcome many tensions between the global, universal world and what is local and personal, and what is ambivalent and sustainable, in order to maintain its identity.

The basis for this conclusion is supported by many researchers who believe that in the process of globalization, the nation-state is being eroded from the "up" through technological, financial, communication and commercial transnational systems, the unification of human societies and the creation of one human society, but also the breakdown of human societies into more specific identity groups. In response, "downward" trends are emerging That also erode the nation-state, they are local in character and reinforcing ethnic sub-national identifications, religious, racial, nationalist, regional and other cultures, attempt to establish boundaries, tighten identities and uniqueness (Morgenshtern. Et al., 2019, pp. 199-210). The implications for education are reflected in educational thinking and action. The multiplicity of worldviews and their recognition of legitimacy by the educational establishment may make it difficult for society to find a common cultural and social ethos (Ben-Joshua Back, 1998, pp. 137-164). On the one hand, the need for strengthening identity, relevance of education and empowering personal abilities and on the other, the need to develop global capabilities, expose the learner to broad geographical and cultural circles and to face the challenges of changing reality. In addition, global economic activity is transformed from domestic activity into a global activity that is expressed in the removal of restrictions and a policy of collaboration to building economic power (Goodman and Barak, 2011. pp. 150-175). Education too, is seen as an economic resource designed to improve competitiveness in the global economy. Success in international achievement tests (Pisa, Tims, etc.) becomes the main goal of educational systems, emphasizing economics-oriented "core" learning alongside strengthening national content (Hanin, 2007, pp. 36-39), and the need

for local, personal and artistic content, Educate young people so they can conduct themselves in school and in life. For this purpose, the importance of awareness, and teacher education.

3. The education system and teachers today face an accelerated change in technological scientific development that brings with it a background of uncertainty, instability, restlessness, difficulties and dilemmas.

Many researchers agree that the modern age is an era of accelerated transformations. In the millennium AD, it was possible to predict with great certainty what day-to-day life would look like a hundred years ahead. In contrast, in modern and rapidly changing realities, it is difficult to assess what reality will look like in a few decades (Morganenstr., Et al., 2019 pp. 199-210). Rapid changes in curricula, technologies, changes in the school environment, new skills, knowledge and learning take on a different meaning and criticism of the school's failure to interest students. Teaching and education become a complex and demanding task for teachers. It is difficult for teachers to apply scientific theories that they have learned about learning and teaching and to adapt to rapid changes thrown at them from above.

Due to teachers' lack of awareness of these changes and non-complicity in setting goals (Lam, 2000, pp. 127-149; Peretz, 2009, pp. 1-22), teachers facing complex educational challenges find it difficult to adapt to accelerated and incessant social, scientific and technological changes and to change their perceptions from knowledge source to knowledge transfer (Kincheloe, 2007, pp. 1-60). Teachers are required to adapt pedagogy to requirements derived from future trends and prepare learners for life in a different reality, which is rapidly changing to future-oriented uncertainties, risk management and the ability to recover from failure, courage to experiment, perseverance, determination. The ability to learn and teach towards an uncertain and unknown future is a challenge that requires dealing with uncertainty, the descriptions of reality that teachers have come to know are changing rapidly, multiplying and even contradicting each other, this uncertainty creates instability and a loosening grip on the changing reality (Morganentern, A. & Co., 2019 pp. 199-210). Teachers awareness of changing environment, help teachers understand their role and change the traditional classical paradigms where they are prisoners in order to make a change and integrate.

4. The education system and teachers today face the gap between the traditional physical, organizational and cultural characteristics that exist in most schools in Israel and the innovative features required to adapt education to the needs of students in a changing environment

The educational approaches that have emerged in recent years have provided theoretical and research anchors that demonstrate that awareness and understanding of the importance of the "place" in which learning occurs is unquestionable (Cohen La-Gank, 2011. pp. 1-4; Morgenstern, et al., 2019. p. 40). Design learning environments and connect with the indoor and outdoor school environment, there is a direct link to improving teaching methods and fostering the best culture and educational climate. The indoor and outdoor school environment largely dictates the organization of personal and professional knowledge and the teaching pattern of the teacher, the functions of the teacher, the organization of classrooms and lessons, the use of time, the measurement of achievement and activation of the students (Leibowitz, 2013; Patton K., Parker M., Tannehill D., 2015. pp. 26-42; Bruner, 2000, pp. 15-55).

The changes that have taken place in recent years have been set as the goals of the education system in Israel with the aim of adapting the structure of the education system to the needs of the economy, and providing students tools to integrate into future economic and social life (Blass & Shavit, 2017, pp. 6-14). However, most schools have innovative activities in separate "islands" in the curriculum in different content areas, in fact, traditional elements can be seen in educational institutions, and most schools in Israel are still completely subject to the two principles of the old organizational structure: authoritarian hierarchical structure and unity of time and place. A school based on an old organizational structure cannot prepare students for the new reality, characterized by quite different organizational structures, the current schools are unable to assimilate the innovations of the present, nor are they capable of adapting to the world of tomorrow (Beck 2013. p. 18). At the base of the school structure today, stands one teacher, who teaches at a particular time, in a particular room, in the school building, a class of 25-40 students, one topic at a time, despite the need for differential instruction, there is a lack of flexibility and organization in space and time. the way the teaching and learning is planned built on the school hour system makes it very difficult to implement it and it

occurs very partially, if at all. Rarely, the teacher provides a suitable response for students who need to learn at a different rate, differently, or with a different teacher. Due to the density and burden of the school day, there is almost no concern for students' preferences and interests and engaging with students' strengths and personal characteristics, beyond their ability to study and examine theoretical content (Banit, 2017).

This fact even more empowering due to the multicultural nature of Israeli society made up of cultures of traditional identity. According to Alhaj (1995) the status of Arab society as a minority group leads to adherence to traditional values and preservation and so the Arab schools have become an authoritative place forcing teachers and students. On the one hand, teachers prefer to integrate into the "culture of silence" and devote themselves to the norms of the establishment, to meet their social expectations and to be part of a consensus. On the other hand, teachers are given social status, teacher in Arab society is seen as having exclusive authority in the classroom which forces his opinion of his students. In Lam's view (2000a, pp. 217-254) a heterogeneous multicultural framework that educates one particular culture will lead to cultural, nationalist, domineering and undesirable.

The traditional physical and organizational characteristics that exist in the vast majority of Israeli schools make it difficult for teachers to use the physical, digital and social environment, and have a decisive influence on professional knowledge and teacher awareness, on the teacher's cognitive and emotional functioning and its interaction with the social, cultural and material environment.

5. "Teacher Awareness" is a multidisciplinary concept that characterizes the challenges of a changing global world and includes a culture and technological scientific development that influence the teacher in the school environment as the basis for adapting teaching to a changing environment.

This conclusion is supported by researchers from different fields of science. In modern Western philosophy, "awareness" is defined by the experiential aspect described through the concept of "qualia," that is, the subjective feeling we experience as an input of our senses and emotions, the disadvantage that is limited in thinking, an independent being influenced by the brain (Varela, 1996. pp. 330-349). Modern psychologists define

"awareness" as a cognitive component allowing absorption of environmental stimuli and internal stimuli, such as thoughts, feelings and physical sensations (Bargh & Kazdin, 2000. pp. 347-348). The highest level of human function, level of mental development, mental capacity to accept the other as subject to object (Sohlberg, 2000. pp. 135-151). According to James (1950, pp. 145-183), its lack of a process that requires a lot of attention resources and therefore they can only be carried out in series one after the other. According to Goleman (1996, pp. 231-240), a person's awareness of himself and the world is the main cause of success in life. In modern sociology, awareness is a social, scientific, or political perspective. Human ability to appreciate objective reality and ability to respond to it, and include people's knowledge of themselves, their actions, and their own responsibility. Awareness is the direct knowledge that each of us has existence and is limited by senses and memory (Sillamy, 1994. pp. 54-55). In contemporary pedagogy awareness is an act of mediation of human function and situation, awareness reshapes the situation, this response is conscious and represents complex behavior that characterizes a person as compared to animals (Vygotsky, 1978, p.14). It is an internal psychological process in which the learner builds meaning into knowledge, skills, emotions and social interaction and develops a broad understanding and ability to cope with the challenges of practical life (Illeris, 2003. p. 227), an important process which helps a person to undergo change and develop (Johnson, 2005a, pp. 103–129). Its disadvantage is the need for clear communication in the school environment (Illeris, 2011. p. 46).

In addition to science, in the last two decades, human social culture has been shaped by technology and creates an environment of wide change in the field of pedagogy and education as well. Many diverse technological means enabling the teacher to increase the diversity and interest in the curriculum and increase motivation for learning. Intelligent use of technology can make the teaching-learning process more dynamic and interesting, enable the provision of support to students with different educational needs, to improve student grades in all subjects, to manage teacher time, to organize information and communication with students and colleagues. To re-examine the teaching materials and teaching methods, not only from the technological perspective, but also and especially from the pedagogical perspective (Groper, 2010, pp. 1-7).

Based on the approach of researchers from the various science streams and based on the Illeris model, self-definition of "teacher awareness" was defined as a multidisciplinary concept, which includes the effects of science and technology development on the individual teacher. The teacher's thinking is influenced by the world of science and technology to which he is exposed during his life, training and experience, however, teachers tend to adopt new ways of teaching in the classroom if these are in line with their epistemological personal perceptions (Clark & Peterson, 1986, pp. 255-296). "Teacher awareness" is an acquired learning tool enabling mental ability to extract raw reality from interpretation of attitudes and beliefs as well as ability to work effectively in the school environment. Education strives to be multidisciplinary field of knowledge and therefore cannot be cut off from the fact that it is multidisciplinary knowledge that draws from the various fields of science. In determining attitudes in education, many considerations take into account different areas (Pasternak, 2002. pp. 1-12). Against this background, the importance of seeing the "big picture" (Hanin, 2007. pp. 36-39), while developing a broad awareness of teachers in teaching planning and adapting to the changing environment.

6. Innovative teaching style is a teaching style that fits the needs of students in a changing environment

The teaching style influences the quality of interaction in the classroom and the emotional atmosphere in it and this has a direct impact on the drive for learning and achievement (Mehleb, 2003, pp. 30-42). The different teaching styles allow the teacher a choice to match any of the styles for every topic and every level, according to the students' variances and they allow the teacher teaching considerations (Kennedy, 2016, pp. 6-17). Constant selection of uniform teaching style by the teacher may depreciate children which have different learning styles. Many researchers believe that teaching styles are acquired and can be designed through the construction and connection of products that can be shared, preserved over time and continually improved (Rothkopf, 2010. pp. 164-179), in this way, the quality of teaching and learner achievement can be significantly influenced (Boyd et al., 2009, pp. 416-440).

Modern changes in changing realities affect the learning conditions and personal space of teachers and naturally influence teachers' awareness of the teaching styles they

adopt (Sergiovanni, 1998. pp. 576-595), In addition, in recent years a new approach to learners' diversity is emerging with reference to many dimensions. Besides learning ability and socio-cultural-economic background, emphasis added about learning styles that relate to ways of absorption, to ways of thinking and how the material is processed, topics of interest, motivation for learning, skills, social skills. The differences between learners previously perceived in terms of "gaps" that should be sought to be eliminated, today, it is seen as a value that expresses personal or social uniqueness that must be established and preserved. According to studies from the late 1980s on the study of intelligence, learning styles and thinking, part of the failure in student learning imputed to the duty of learning styles and not to the student's weakness (Kashti, 2001). Effective education is the one that widens the differences between students and does not reduce them, attention to learning styles helps to improve the learning process itself and requires the use of diverse teaching methods, without distinctions that label certain learners as limited in their developmental ability (Gordon & Co., 1994. pp. 99-104). Lack of correlation between teaching processes and learning styles may cause failure achievements (Bennett, 2015. pp. 11-13). Therefore, teachers must be flexible and don't stick to one of the methods regularly. teachers must develop an active awareness of the teaching practice which will help them to use professional knowledge optimally and increase their autonomy space (Michaeli, 2015. pp. 21-22).

Teaching styles can be organized according to three main approaches: the first approach is teacher-focused, the second approach is learner-centered and the third approach combines the two approaches together, these approaches represent different levels of teacher engagement from full engagement to minimal engagement. There is no better style, assuming that not all students respond well to a particular style, any teaching style can lead to the building of knowledge and skills and can also be a mixture of a different style. Effective teachers are teachers who are aware of the changing reality and use a variety of styles and know how and when to choose the one that best suits the students' diversity in a specific situation without compromising other learning styles on the one hand, on the other hand, help the student to work flexibly and develop a new style that has not been tried. Teaching style can be complex from a variety of routine activities

or prefer one type of knowledge depending on the target population in a changing environment.

7. The education system and teachers are currently facing the gap between traditional professional development and teacher training that exists today and the needs of teachers in the changing environment

The purpose of professional development and teacher training is to change and improve the teacher's teaching abilities consistent with changes in the education system (Parimala Fathima et al, 2014. pp. 27-32). Most of today's teachers were not trained to cope with the phenomena of globalization and have not been trained to be aware of the effects of globalization on student and community life. Teacher training does not develop knowledge and living experiences with diverse cultures and awareness of diversity, equality and globalization that characterize the entire society and required for teachers in today's society (Merryfield, 2000. pp. 429-443). Zohar (2002. pp. 3-28) argues that teachers do not undergo significant change in the construction of their pedagogical knowledge. As students, they learned the traditional way of imparting knowledge and did not experiment with innovative learning so their beliefs are based on this experience. According to Tamir (1997, p. 7-19), in order to change teachers' traditional beliefs, teacher training must be integrated develop awareness of their prior knowledge and beliefs (Jordi, 2011.pp. 181-197). Teacher training in Israel still does not deal with postmodern ideas, but emphasizes uniform and standard content in the teaching of the professions and achievement assessment that leave no room for autonomy development, the lack of use of teaching methods tailored to students' differential needs and the lack of emphasis on humanistic-value aspects and intelligent use of technology. The interpretation of the curriculum, as well as the fact that teachers are a bridge between educational policy and educational practice, are not sufficiently addressed in the training and professional development processes, especially missing the critical view of the programs and their evaluation in the context of issues of equality and social justice (Ben Peretz & Debt, 2010, p. 215-232). Therefore, for many teachers in Israel, professional development processes constitute an external extension for teaching and not an integral part of it (Abundance, 2015. pp. 141-142).

In order to adapt the education system to the postmodern characteristics, it is of critical importance to design teacher training and professional development combined with teaching work, tailored to the changing environment, faced with postmodern ideas, developing autonomy, developing and using teaching methods adapted to students' differential needs. Emphasis on humanistic-value aspects, incorporating mentoring, peer viewing, and analyzing their data-based practices with awareness of learning processes (Bill & Melinda Gates Foundation, 2014. pp. 3-16). Awareness of personal knowledge and its uses and accountability required in the professional action expressing attention to customer needs and responsibility for processes carried out in his case and their results, commitment to quality and ethical and moral sensibilities, ability to self-control and periodically review action effectiveness, developing self-awareness of strong and weak points in functioning, developing personal expertise as well as a commitment to examining the contribution of the teaching profession to the broader society (Avador, 2003, p. 165-209). Developing awareness of the need to replace behavioral teaching methods with constructivist learning methods (Yechieli, 2008, p. 40-44). Replace the summary evaluation" and using alternative methods that emphasize more designer evaluation

(Birnbaum, 2007, p. 40-46), Integration of communication tools into all aspects of teaching and learning (Porkosh-Baruch et al., 2010, pp. 229-232; Surry et al., 2003), developing Postmodern Leadership Skills (Wilson, Shulman & Richart, 1987. pp. 104-124) and transition from a disciplinary curriculum to an interdisciplinary curriculum (Doll, 1993. p. 252). Developing awareness of traditional and modern teaching will enable the creation and planning of comprehensive teaching activities, emphasis on moving from traditional solutions to modern solutions, using a wide variety of teaching styles including focusing on educational partners presenting a diverse level of knowledge. By doing so, the system will expand its messages for teachers who wish to implement innovative activities and build modern education.

In the following, conclusions from empirical research were formulated:

The sample of teachers in the study expressed the statistical representation of the Israeli teacher including a young woman over 18 years old, with a few years of work experience, 1-8 years, comes from a small town and an older woman, over 30 years old,

with 9 years and over 15 years of work experience, also comes from a small town. A young man with 1-8 years of work experience, comes from a small town and an older man over 30 years old, with 9 - over 15 years of experience, who also comes from a small town. This study deliberately selected 50% men and 50% women to make a reliable comparison between the female teacher population and the male teacher population. However, the proportion of female teachers in Israel is significantly higher in all stages of education, in primary education over 85% of female teachers, while the proportion of male teachers in basic education is 15%, a phenomenon that exists in most OECD countries. In Israel, on average, male teachers are older than female teachers, the age difference is increasing with the stages of education, in secondary schools, the age gap is higher between men and women. The same phenomenon exists on average in OECD countries but the gap between ages is lower (OECD, 2018).

The data shows that despite the timely perspective, the structure of teachers participating in the study and statistical representation as well as the problem of the education system and teachers in Israel were raised here. A problem arising from the need to adapt the education system to the new needs of the future generation and manifests in teachers' aspirations for professional knowledge and awareness of teachers relevant to the changing environment and the creation of appropriate training pathways, innovative educational offerings and leadership roles for teachers in the Israeli education system.

After presenting the general information, the following is a discussion of the diagnostic test summaries:

1. Israeli teachers have a higher awareness of traditional teaching that influences traditional teacher functioning in the three dimensions, cognitive, emotional and social.

The findings of the questionnaire show significant positive relationships between traditional / innovative teaching awareness and teacher functioning (Table 14). That is, a higher teacher's awareness of innovative teaching is associated with a higher level of teacher functioning, and vice versa. There were also significant positive relationships between traditional / innovative teaching awareness and the three measures of teacher

functioning: cognitive and emotional. That is, a higher teacher's awareness of innovative teaching is associated with a higher level of functioning of the teacher in the cognitive and emotional dimension and vice versa. In addition, the Pearson correlation analysis findings showed that the three dimensions of traditional / innovative teaching awareness had significant positive relationships with the general variable of teacher functioning (Table 15).

From the findings of the teachers' awareness in Israel for traditional / innovative teaching according to teaching approaches, combination of skills and learning structure (Table 2), found associated with traditional teaching. So are the findings about teacher functioning (Table 3) found to be associated with traditional teaching. That is, the participating teachers are more aware of traditional teaching and therefore their level of functioning is traditional.

According to the findings about traditional / innovative teaching awareness (Table 2), there is a very high level of agreement among teachers with key principles in traditional teaching such as, teacher is the main active factor in teaching-learning processes, teachers teach according to curriculum and a pre-made work plan and they prefer students to memorize their knowledge. Also, there is high agreement that discipline and regular classroom seating are important for the student to learn and in their experience, teachers prefer that students work only in the classroom and in the Lesson class. Also found among teachers medium-high agreement about the integration of technology into the classroom makes it difficult to plan the lesson, position and adjust the teaching method and that teachers come from a background where the teacher provides optimal information to students and students are not likely to comment on it. Regarding innovative teaching awareness, there was low agreement among teachers with their role as teachers, they teach according to a flexible curriculum of time and place, beyond the boundaries of class and classroom and low consensus that most of their time is devoted to active learning processes, experiences and self-work of learners.

These findings are supported by researchers describing the role of the teacher according to the traditional approach at the center of the classroom, he is the agent who delivers knowledge and skills and he imposes the rules of behavior (Peters, 1970. pp. 5-20). The teacher is not required to use his judgement About the type of knowledge to

teach but it is dictated to him by external parties, the teacher is passive and can change his content very little (Zeichner, 1994. pp. 9-19). Its purpose is to educate young people for the usual patterns of thought and behavior in the society they are in, knowledge of the content is interpreted as the ability to reproduce and memorize the material accurately, by way of imitation, "The Executive Approach". In contrast, innovative learning is based on diverse learning skills, including thinking, problem solving, self-regulation and teamwork, activity and experiences. (Geier et al., 2008, pp. 922–939). Learning takes place at all times and places and in all walks of life, use of communication tools and access to high quality digital content and teaching (Bush & Wise, 2010). Traditional teachers use technology as an add-on to existing learning and not as part of acquiring the skills required today (Magen-Nagar, Inbal-Shamir, 2014. pp. 78-110). When teachers "think" that learning is to sit still and listen, to teach, is to lecture, knowledge, like an object, that can be passed from person to person and to be a good student is to know what is taught in the school that guides him to social and thoughtful behavior, this is a concept based on traditional education (Harpaz, 2012. pp. 29-38).

The findings show that awareness of teacher performance measured by three dimensions: 1. Cognitive 2. Emotional 3. Social, were found to be associated with traditional teaching (Table 3). Based on Illeris's theory, the cognitive dimension that includes thinking, the emotional that includes emotions and motivation, and the social dimension that includes communication and collaboration, occur simultaneously in the learning process (Illeris 2003, pp. 21-63). According to the teacher's cognitive function - low agreement that teachers' role is primarily to mediate and assist the student in his or her learning process. According to the teacher's emotional functioning - low agreement that the right approach to teaching new knowledge is to base on previous knowledge and also the disagreement that teachers give students learning tasks according to different intelligences. According to the social function of the teacher, there is a high level of agreement that they do not engage in much of the social-cultural, economic and technological content in the lessons, and only some of them teach their students to reflect on the learning process.

However, most teachers reported success in the cognitive field, especially young people, but the minority of teachers reported success in the emotional field and about

social environmental success and only among young women teachers found social awareness that teachers should be active members of a professional knowledge community in their professional life, opening their work for peer feedback and training processes and using up-to-date and global professional knowledge resources.

Researchers believe that unlike a traditional teacher function, the innovative teacher must be able to mediate and assist the student to evaluate himself and improve his abilities through reflection, the teacher should change the teaching methods, to diversify his ways of working, allow students to perform challenging assignments and experience teamwork (Ben Zadok, Nahmias and Mintz, 2006, p. 1-10). The teacher is required to be an expert in content, practical teaching ability, attention to differences between learners, ability to select content that fits previous knowledge, environment, time, place and learners (Bush & Wise, 2010). Also, partner in professional learning communities This is the key to the professional development of the teacher and his or her awareness of changing school cultures (Bransford et al., 2005. p. 5).

This conclusion confirms the research hypothesis that Israeli teachers are more aware of traditional education and therefore, as part of their functioning, do not use their professional knowledge in diverse and interesting, and in most cases, teach the traditional way in a changing world (hypothesis 4).

2. Israeli teachers' awareness of traditional teaching influences the low use of various types of knowledge

Significant positive relationships were found in the questionnaire between the use of self-knowledge, personal knowledge, professional knowledge and environmental knowledge and awareness of traditional / innovative teaching (Table 12). That is, a higher level of use of knowledge types in all dimensions is related to the higher awareness of the teacher of innovative teaching, and vice versa. Lower level of use of knowledge types in all dimensions is associated with higher awareness of traditional teacher education. In addition, significant connections were found among the different types of knowledge (Table 13). The higher the teacher's use of self / personal knowledge, the higher the level of use of his professional knowledge. In contrast, the higher the teacher's use of professional knowledge, the lower the use of environmental / school knowledge.

Findings of the questionnaire about teacher awareness in Israel for traditional / innovative teaching according to teaching approaches, skills integration and learning structure (Table 2), found associated with traditional teaching (conclusion 1). So are the findings about uses of the types of knowledge (Table 4) found associated with traditional teaching. That is, participating teachers are more aware of traditional teaching and therefore the level of use of different types of knowledge is low.

Among most teachers examined there is a low awareness of the use of **environmental knowledge**, teachers report limitations within the school: in time, space and culture, which usually does not allow them to initiate social interaction, collaborations, critical dialogue, team work, and watching the activities of teachers, mainly for young women teachers and older men teachers. They also hold little responsibility for the learning environment that includes social gaps, norms, language, and a lack of awareness of their ability to change the environment and failure to maximize the capabilities of their students. That is, the school environment is not used optimally due to restrictive conditions that lead teachers to traditional functioning. Also, among most participating teachers found, low awareness of the use of **personal knowledge** which includes the lack of impact of important research on their teaching, and the lack of pedagogical principles and teaching techniques that are not limited to a particular content area. However, young women teachers make more use of personal knowledge. Most of the participating teachers also found low awareness of the use of **professional knowledge**, including low responsibility for developing academic and self-sufficient skills among students, as well as low responsibility to study the subject matter in depth before teaching their students. Older male teachers make more use of professional knowledge. In contrast, high awareness of the use of **Knowledge of others** was found, related to students only. Most teachers are interested in the backgrounds and identities of their students and it's important for them to build a relationship with their students, mostly young women teachers. There was also a high awareness of the use of **self-knowledge**, teachers believe they have theory / theories about the learning process affecting their way of teaching and their teaching approach is shaped by past experiences from the teachers who taught them. This finding is supported by researchers who believe that pedagogical knowledge is guided by a multitude of theories, philosophies, beliefs,

and values that deal with teacher functioning and teaching-learning dynamics (Clark & Peterson, 1986. pp. 255-296), The teacher's theory is grounded in his personal past and has an influence on the teacher's perceptions of the classroom reality. Teachers tend to teach as they are taught, teachers who have learned in the conservative approach, acting according to which most of them perceive teaching and learning in the sense of knowledge transfer (Soter, 1995. pp. 303-322). In this case, the finding may be interpreted as a consciousness of traditional awareness, assuming that they have previously learned by the traditional method.

The low level of use found by most teachers participating in four of the five types of knowledge tested, influenced by teachers' low awareness of the various types of knowledge and awareness of traditional teaching across all dimensions: teaching approaches, skills integration and learning structure. According to Illeris, teacher knowledge can contain various types of knowledge, skills, opinions, understanding, insight, meaning, attitudes, and other terms that can also be used as knowledge types. Teachers can acquire knowledge without being aware of it, It is an action they do daily (Illeris, 2007.p. 17).

Developing teachers' awareness of their types of knowledge may be useful to them for teaching planning, as well as recognizing the growing need in the modern world to adapt and improve teacher learning. The higher the awareness of the various types of knowledge, Thus the use of knowledge will be in diverse and interesting ways adapted to student diversity in familiar and unfamiliar situations in a variable reality characterized by uncertainty. Assuming that not all students respond well and in the same way to a particular teaching style (Gardner, 1983. pp. 14-26), teachers who are aware of the changing reality are effective teachers who use a variety of styles and types of knowledge and know how and when to choose the one that best suits the target population.

The conclusion confirms the research hypothesis that awareness is one of the most important factors affecting the use of professional knowledge in Israeli schools (hypothesis 1).

3. Traditional Israeli teachers' awareness of the different types of knowledge affects the use and low diversity of teaching styles adapted to the needs of students in a changing environment

Among the findings of the questionnaire significant positive correlations were found between traditional / innovative teaching awareness according to the three dimensions 1 Teaching approaches 2. Skills integration 3. Learning structure and the use of different types of knowledge (Table 13). The higher the awareness of teachers of the different types of knowledge, the higher the use of diverse teaching styles and vice versa. The findings of the teachers' awareness of instructional approaches, skills integration and learning structure (Table 2) were found to be related to traditional teaching (conclusion 1). So are the findings regarding the use of the various types of knowledge (Table 4) found to be associated with traditional teaching. That is, the level of use of teachers participating in the various types of knowledge is low and therefore the use of diverse teaching styles adapted to student needs is low.

Teaching styles are defined in the research literature as a derivative of classroom practice and teaching approaches (Kennedy, 2016. Pp. 6-17). Many researchers believe that teaching styles are acquired and can be shaped through the construction and connection of knowledge types that can be shared, preserved over time and continually improved (Rothkopf, 2010. pp. 164-179), in this way, the quality of teaching and learners' achievements can be significantly influenced. In the first stage, teachers develop new teaching styles through knowledge from different fields and at the next stage, they are translated into actual teaching situations and adapted to learners, thus making them a work routine (Boyd et al., 2009, pp. 416-440). New approaches to building teacher knowledge allow teachers the opportunity to engage with the personal building of knowledge, building partnerships within a professional community (Hawley & Valli, 1999. pp. 127-150). Teachers involved in building knowledge of the curriculum Implement innovative styles in their teaching work effectively (Deketelaere & Kelchtermans, 2006. pp. 71–85). When teachers do not take part in these decisions, they don't feel obligated and most often implement the curriculum in the traditional approach (Frank et al., 2001. pp. 653-689). In addition, in recent years, attention has been paid to differences between learners and learning styles, which help to improve the teaching and learning process and require the use of diverse teaching methods (Gordon & Co., 1994. pp. 99-104). The teacher must be flexible and develop an active awareness of teaching

approaches which will help him to use the types of knowledge optimally for the students and increase his autonomy space (Michaeli, 2015. pp. 21-22).

This conclusion confirms the research hypothesis that Israeli teachers are more aware of traditional education and therefore do not use their professional knowledge in diverse and interesting ways of teaching, and in most cases, Israeli teachers teach in the traditional way in a changing world (hypothesis 4).

4. Israeli teachers who have been trained in the effects of globalization with a higher awareness of innovative teaching and function in three dimensions: cognitive, emotional and social.

From the results of an independent t-test sample analysis about the training of globalization teachers (Table 10) was found significantly higher awareness of innovative teaching in all three dimensions among teachers who received globalization training compared to those who did not. In addition, the level of fear barrier was found to be significantly higher among teachers who did not receive globalization training than those who did (Table 10). The level of awareness of teacher functioning in the cognitive dimension was significantly higher among teachers who received globalization training compared to those who did not (Table 10). Also, the level of use of self / personal knowledge was significantly higher among teachers who received globalization training compared to those who did not (Table 10).

This finding supports the approaches of researchers who believe that understanding the nature of future teacher training, it is essential whether it occurs at a university or as a school activity. The need to plan teacher training which places, at the top of its consideration scale, the teaching needs which are intersected with future needs of the individual and the wider society and relevant to the learning characteristics of future generations in schools (Eraut, 1994. pp. 221-242). Professional training and development based on innovative principles is the key factor in improving teaching quality (Bill & Melinda Gates Foundation, 2014. pp. 3-16).

Developing teachers' awareness of the need to replace behavioral teaching methods with constructivist methods (Yeichieli, 2008, pp. 40-44). Transition of Summary Assessment Methods to Design Assessment (Birnbaum, 2007, p. 40-46), (Birnbaum, 2007, p. 40-46), integrating ICT in the Teaching and Learning Process (Purkush-Baruch

and Debt, 2010, pp. 229-232; Surry et al., 2003), developing Postmodern Leadership Skills (Wilson, Shulman & Richart, 1987. Pp. 104-124) and transition from a disciplinary curriculum to an interdisciplinary curriculum (Doll, 1993. p. 252). The Teacher Training Program should help teachers learn how to work to improve their work as members of collaborative communities (Bransford et al., 2005. p. 5), expanding their professional expertise and their ability to adapt successfully, to systemic, cultural, demographic, and social changes and emphasize that the teacher is aware of the frequent changes in knowledge, teaching environments, company values and learners and adapts to them, this teacher challenges the obvious and can criticize the model his teachers set him and the routines he acquired with their help and instead, understand new complexities and interact with content (Tsui, 2009. pp. 421-439; Bransford et al., 2005. pp. 1-39). Adaptive teacher is a teacher who is aware of the need to give up comfort of sticking to what he specialized in after strenuous study and repeatedly refer to new information that needs to be updated, to clear it and filter it, keep some of it and abandon another. The expectation from such a teacher is that he will not only adopt innovations rather, he will partner in creating innovations, the constant search for solutions and their evaluation, in collaboration with others, makes him a conscious professional that change and renewal are not a threat to him, on the contrary, challenging it (Berliner, 2001. pp. 463-482).

It is important to combine traditional, modern and postmodern perceptions in teacher education for the reason that the integration of the ages offers strong infrastructure for developing pedagogical practice and extending the boundary of the theory of education (Giroux, 1993. pp. 452-496; Doll, 1999, pp. 9-17).

The conclusion confirms the research hypothesis that teachers who are aware of traditional education and contemporary education will use their professional knowledge in diverse and interesting ways (hypothesis 2).

5. Traditional personal learning characteristics and barriers to teacher awareness in Israel affect professional knowledge and awareness of traditional teaching.

The findings about awareness of traditional / innovative teaching according to teaching approaches, skills integration and learning structure (Table 2), found associated with traditional teaching. So are the findings on personal learning characteristics (Table

7) and barriers to awareness (Chart 16, 17, 18) which were also found to be associated with traditional teaching. That is, the participating teachers have traditional personal learning characteristics and barriers to teacher awareness. Therefore, their professional knowledge and awareness of teaching is traditional. The findings indicate that the teachers examined rated the importance and significance of personal learning characteristics as higher: their cultural values, political / social beliefs, emotions and thoughts affecting their learning as teachers (Table 7) compared to the environmental characteristics, which were rated as lower: lecturers' behaviors, peer ideas, other people's behaviors.

According to the research literature teacher learning and knowledge is the result of the constellation of experiences during their lives, it is shaped by the beliefs and perceptions developed during their lives, that have a significant impact on curriculum design and implementation (Peercya, M, M, et al., 2015. pp. 867–893). Teacher role identity and his perception of what is best teaching related to his past experience, to past teacher memorial charges, for previous teaching experience or childhood experience related to learning and teaching, family members and the event history he experienced in his life, all these have shaped his personal data (Ben-Peretz, et al., 2003. pp. 277-290).

The findings also indicate that older male teachers rated "the behaviors of other people who have had an educational role in their lives" as a significantly higher value compared to younger teachers. most of the older teachers they have previously taught traditional teaching in most cases. The fact that teachers do not receive any kind of training is significant in building, their pedagogical knowledge from traditional teaching to innovative teaching, may indicate that their beliefs are based on traditional teaching. Teachers who used to be students, learn the traditional way of imparting knowledge and have not experienced the study focused on research, their beliefs are based on this experience (Zohar, 2002, p. 3-21). Personal knowledge and materiality which comes from the teacher's education, which is passive, encyclopedic, both as a child and as part of his training and he is in most cases unaware, may be a significant factor for traditional education in the Israeli school. According to researcher Paulo Freire in his work "Pedagogy of the Oppressed" claims that traditional teachers who behave in certain ways with certain beliefs of learning processes and knowledge that they were used to, may

resist innovation because their special beliefs about learning, which were built in their minds from childhood, will become worthless if they accept innovation (Alam, 2013. p. 30).

Also, the findings of the questionnaire found a significant negative relationship between the barrier of fear (I don't do everything in my classes that I would like and believes in him due to various fears) and the awareness of traditional / innovative teaching and in all the dimensions of traditional / innovative teaching awareness. (Table 17). That is, the higher the fear barrier, so awareness of traditional teaching is higher and vice versa, a lower level of fear is associated with a higher awareness of innovative teaching. Researchers believe that in order to adapt pedagogy to the requirements of the future and preparing learners for life in a different and complex reality rapidly changing to uncertain future directions, the teacher must teach his students risk management and failure recovery capabilities, courage to experiment, persistence, and determination (Morgenstern, A. & Co., 2019 pp. 199-210). Teachers who have fears of innovative experience, they will have difficulty educate courage and experience.

Also, from the research findings, a significant negative relationship was found between the barrier Self-capable (The contemporary teacher is not the only "knowledge authority" and is therefore unable to properly perform his duties as a teacher) and the awareness of traditional / innovative teaching in the two dimensions: Teaching approaches and skills integration. (Table 17). That is, the higher the level of the barrier Self-capable, so the knowledge and awareness of traditional teaching is higher and vice versa, higher level of ability is associated with higher awareness of innovative teaching and knowledge. Most participating teachers believe that teacher without "knowledge authority" will not be able to perform his job properly, hence, their Self-capable as teachers is low. This finding supports the approaches of researchers who believe that lack of authority and Self-capable of the teacher may be a barrier for developing awareness because of his constant need to survive and his lack of available to learning. getting out of this crisis involves changing the attitudes of teachers to the concept of educational authority while developing awareness of their role and its adaptation to this time (Goscow, 2016, pp. 70-102).

The conclusion confirms the research hypothesis that Israeli teachers are more aware of traditional education and therefore do not use their professional knowledge in diverse and interesting ways (hypothesis 4).

6. The traditional physical and organizational characteristics of Israeli schools as the teachers' workplace influence the awareness of traditional teaching and functioning in the three dimensions: cognitive, emotional and social.

Professional knowledge and awareness of the physical and organizational characteristics of schools as their workplace, tested among participants using three components of the questionnaire: A. Environmental Knowledge ("The School Framework is Restrictive: time, space, and culture and usually does not allow me to initiate social interaction, collaboration, critical dialogue, teamwork, and watching teacher activity", "as a teacher, I have a responsibility for the learning environment that includes social gaps, norms, language, and I can change it to enable the fulfillment of my students' abilities"). B. Environmental characteristics that are an opportunity for awareness (Breaks, school climate, multiculturalism) and as a barrier to awareness (Contrasts and environmental dilemmas). C. Negative and positive environmental characteristics (physical structure, social, time, professional development, relationships with extracurricular factors, school values education, attitude to student diversity), environmental difficulties and environmental successes.

A. The findings regarding teachers' awareness of environmental knowledge indicate that Significant positive relationships were found between awareness of traditional / innovative teaching and the dimensions: teaching approaches and skills integration and all types of knowledge including environmental / school knowledge (Table 12). That is, a higher level of use of environmental knowledge Is associated with the teacher's higher awareness of innovative teaching and vice versa.

Findings from the teachers' awareness of traditional / innovative teaching and its dimensions: teaching approaches, skills integration and learning structure (Table 2), found to be associated with traditional teaching (conclusion 1), so were the findings regarding environmental knowledge (Table 4) found to be associated with traditional teaching. That is, the level of use of teachers surveyed in environmental knowledge is low. Therefore, awareness of innovative teaching teachers is low.

Many researchers emphasize the importance of teacher awareness and environmental knowledge and that the teacher's knowledge is influenced by the physical environment of his daily work in the field and his perception of the school methodology. School knowledge includes the social school experience which has a great influence on pedagogical knowledge as well as the teacher's behavior in the classroom (Connelly & Clandinin, 1990. pp. 2-14). Environmental knowledge is learned while belonging to a learning community and it is unique to the environmental culture in which the teacher grew and from the experience of significant characters he meets during teaching (Buchman, 1987. pp.153-164). teacher knowledge is social and determined by time and place, interact with environment that includes other people, a certain culture at school and a rapidly changing global world offering unlimited learning options (Illeris, 2003. p. 227).

In addition, a significant negative relationship was found among the use of professional knowledge (The role of teachers in developing among their students' academic and self-capable skills, teachers need to learn in depth the subject before they teach their students ") and the use of environmental knowledge / school (Table 12). The higher the teacher's level of professional knowledge, the level of environmental knowledge / school use is lower. This finding strengthens the relationship between types of knowledge: environmental and professional knowledge affecting each other and the functioning of the teacher. according to Illeris, the three dimensions that exist in the teacher's learning process: content, emotional and social, usually operated simultaneously and they are always affected by each other, cognitive knowledge may change environmental behavior and vice versa (Illeris, 2007. pp. 40-41). The negative relationship may be due to the environment that should serve as a tool for awareness learning in the regular school that exists in its traditional structure, teachers and students find it difficult to use the physical, digital, social environment for learning awareness and empowering learning (Perkins, 1998. p. 142).

B. Physical Properties Findings as opportunities for teacher awareness in the school climate (The school breaks give me a chance to get to know the school culture, open climate and professional autonomy for teachers encouraged the teachers to develop awareness of student needs and initiate a change in school). Young male teachers report

significantly higher opportunities only in the category of social / cultural awareness compared to older teachers, but it should be emphasized that they are a small group of teachers in relation to the sample size (21, about 19% of the sample). Also, the young teachers did not report that they apply and experience it in practice and they express significantly higher agreement with traditional teaching concerning statements they teach according to a curriculum and that discipline and sitting in a regular classroom are important for students to learn (Table 2). According to researchers, school breaks reflect the culture and school lifestyle (Gutman, 2012, p.1). They may be used by the teacher as an opportunity for personal and environmental awareness learning during daily work at school. In addition, the school as a heterogeneous multicultural environment may provide an opportunity for Developing Social Awareness for Teachers and Students (2000b, pp. 17-121). An environment that encourages autonomy and open organizational climate, based on trust allowing teachers professional autonomy affecting teacher awareness and behavior, such as: initiative, aspiration for innovation, collaboration with peer teachers, pleasure, propulsion, empowerment, high commitment in decision making to create environmental change, responsibility expressed in awareness of school conduct (Friedman, 2010, p. 1-14).

In the context of barriers, it was found that most the contrasts and dilemmas that teachers experience in their professional knowledge they are socio-environmental, especially in adults (Chart 16, 17, 18), the higher the barrier, the higher the awareness of traditional teaching as well as dimensions of teaching approaches and skills integration. According to the research literature, contrasts and dilemmas in the knowledge world of teacher's characteristic of the contemporary period. Perception of curriculum content facing student needs in a changing environment causing teachers to bend the use of innovative tools to traditional pedagogy (Wood & Geddis, 1999. pp. 107-119). School knowledge existing in schools based on "correct" answers, lesson plans and "material to be tested by students", therefore, teachers must teach. Seeing knowledge in such a way is inconsistent with innovative learning (Schon, 1987a. p.107). To overcome teachers' insecurity about what they teach teachers must develop an active awareness of changing situations, find insights into pedagogical intentions and their importance and from these

insights create a match between what they believe and how to put it into practice (Wood & Geddis, 1999. Pp. 107-119).

C. The findings indicate that two physical-organizational components of schools (out of seven) which have been marked among the participants negative characteristics are: the most common is the physical-organizational characteristic (Closed building, lack of equipment or labs, hierarchy, rigid management, lack of discipline, lack of learning space), the second most common - time division (Overload, time pressure, overtime, event load) (Table 11). In contrast, the components that were perceived as positive characteristics of schools they are: the social (good teacher staff and teacher friendships), and physical organization (similar to a school attended by teachers, a proactive entrepreneur).

The components perceived as positive are less reflected in the teaching work and stems mainly from the personal need of teachers for social connections and nostalgia for the school they previously attended. The school environment that exists in Israel today is based on a historical structure, and they are based on the educational approaches and goals that were dominant in the time they were forming. These structures are now forcing schools to adhere to pedagogical approaches that are not necessarily effective for them (Banat, 2017).

An interesting result is the ingredient referring to the variation between students perceived as less positive (fifth place out of six components) thus, found to be associated with traditional teaching. Awareness of the existence of differences between learners, refine child observation and in their ways of working and promote the general sensitivity of the teacher to each student (Gardner, 1983, pp. 14-26).

The element that relates to relationships with out-of-school parties is perceived least positive (last place) and found to be associated with traditional teaching. This is also the case with questions about environmental factors (chart 4, 5, 6), adult and young teachers report low impact of factors outside the school compared to impact within the school and older women teachers report significantly higher rates without the influence of experienced people on their work compared to younger teachers. Researchers believe that the closed structure of the existing school today, defined and fenced in geographic space and built from independent class and age units, it affects school closures to the outside

school environment. Changing perception and connection with the environment involves awareness of the location of environmental factors and their increasing influence on school activities (Talias 2011, pp. 1-21). Teacher awareness complex and materialized in a school environment shared by a cultural and social community.

Also, most of the teachers who participated in the study report on socio-environmental difficulties (chart 1) especially young male teachers (Chart 3) can be explained on the basis that the young male teachers are few and therefore feel lonely in the Israeli education system. For environmental successes (Chart 7, 8, 9), all teachers report low social success rates compared to successes in other areas. Older teachers report high rates of school-social success (16.7%) only compared to younger teachers (9.5%).

The conclusion confirms the research hypothesis that the physical and organizational characteristics of Israeli schools are mostly traditional and they define the working conditions of the school and influences the awareness and professional knowledge of teachers of traditional or contemporary education (hypothesis 3).

7. Teacher learning influenced by personal and environmental characteristics affects innovative teaching awareness in teaching approaches and skills integration.

From the findings about environmental learning characteristics (teamwork, watching other teachers, integrating discourse and multicultural discussion) and personal learning characteristics (emotions, feelings, thoughts, experiences, reflection, attitude towards variance), significant positive relationships were found between teacher learning and the general variable of awareness of traditional / innovative teaching (Table 16). That is, the more teachers' learning is influenced by personal and environmental characteristics, the awareness of the innovative teaching teacher, which includes teaching approaches and skills integration, higher and vice versa.

Also, significant positive relationships were found between teacher learning and two dimensions of awareness of traditional / innovative teaching: Teaching approaches and skills integration. According to Hattie's Learning Model for effective learning, teachers should be aware of their personal knowledge and environmental knowledge that includes what each student thinks and knows and thinks about his thinking, to create meaningful experiences adapted to the student. What works best for students is similar to what works best for teachers (Hattie, 2015. pp. 79-91).

also, in analyzing the findings by gender and seniority, it is found that younger women teachers reported significantly higher consent compared to older women teachers concerning the statement: "In teaching, I acquire different skills while working on a team." The group of young women teachers is small, in relation to sample size (23 - about 20% of the sample) and most teachers have not been reported that way.

From the findings about personal learning characteristics (Personal history as a learner, cultural values, political and social beliefs) and environmental learning characteristics (lecturer behaviors, peer ideas, other people's behaviors) that influence teaching work (chart 13), It was found that teachers rated the importance and significance of the environmental characteristics as lower in relation to personal learning characteristics and so they were found to be associated with traditional teaching. According to Piaget, learning is a dynamic process characterized by personal independent activity and exploration and interaction with the environment. Interaction between personal ways of thinking and new environmental experiences create the balance between the cognitive system that includes the individual's learning characteristics and the outside world that includes environmental learning characteristics, only in this way is change and development created (Piaget, 1972, pp. 489-509). Vygotsky developed a learning theory based on the assumption that everything is taught on two different levels, through social interactions and internalizing the inner mental structures, in the learning process, both paths intersect repeatedly (Vygotsky, 1978. pp. 34-40). According to Gardner's view awareness of the existence of the variance which includes personal and environmental learning characteristics, refine his observation in the way of teaching (Gardner, 1983, pp. 14-26). Professional Knowledge Built in Social Learning Environment-Learning Space and includes a cognitive, emotional, and social process occurring at the same time (Illeris 2011. p. 46). When we become aware of our personal and environmental learning characteristics, we build meaning into knowledge, skills, emotions and social interaction, that way we can develop a broad understanding and ability to deal with the challenges of practical life and the challenges of the modern world, emphasizing the evolution of science and technology affecting the teacher (Illeris, 2003.p. 227; Illeris, 2007.p.17).

The conclusion confirms the research hypothesis that cognitive thinking, emotion and the environmental-social context that includes culture and scientific and

technological development, which is necessary in a changing global world, have the greatest impact on the teachers' awareness and professional knowledge and the place of their employment (hypothesis 5).

8. Women teachers with a higher awareness of innovative teaching and use more knowledge types and teaching styles compared to male teachers

Independent T-test sample findings show that there were significant differences between women and men in awareness of traditional / innovative education in all three dimensions: teaching approaches, skills integration, learning structure (Table 18). Found significantly higher awareness of innovative teaching among women compared to men. Women teachers expressed significantly higher agreement with the statements that they challenge students to learn independently and to think critically and that most of their time in classes is devoted to active learning processes, experiences and self-tasks compared to male teachers (Table 2). However, male teachers expressed significantly greater agreement with traditional statements such as, integrating technology in the classroom makes it difficult for them to plan the lesson and they come from a background where the teacher gives the best information to the students and that the teacher is the main active factor in the teaching processes (Table 2).

Furthermore, women teachers were found to have higher rates of knowledge in the categories of self-knowledge, environmental knowledge, and knowledge of others (Chart 11) and rated their cultural values as well as their personal history at a higher rate compared to men (Table 7).

Among female teachers, significant positive relationships were found among all three dimensions of awareness of traditional / innovative teaching and general Teacher Function and Cognitive Dimension (Table 14), also found among female teachers' significant positive relationship between teacher learning and teaching approaches (Table 16).

The gender issue, women and men teachers, tested as part of socio-demographic and its relationship to the major research variables. Alongside the feminization process and possibly as a result the formal status of women in education has risen and their roles in schools. In Israel, the percentage of women in teaching is higher than men numerically and socially. Therefore, the teaching profession is traditionally considered a female

profession. Today, the percentage of women teachers in Israel is significantly higher in all stages of education, especially in kindergartens (over 99%) and in primary education (over 85%). This phenomenon exists in most OECD countries. The percentage of male teachers is increasing at higher education levels, the percentage of male teachers in elementary schools is about 15%, about 21% in junior high and about 30% in high schools (OECD, 2018). Women principals in elementary schools, they are the majority of total primary school principals in Israel (Adi-Rakah, 2014).

That is, women have been successful in the education system and integrate into management roles, despite this, the social attitude to the profession is characterized by depreciation of his status and prestige, low social status, a demanding occupation with a low salary and limited promotion options, public appreciation of Israeli teachers is low (Beck, 2013. p. 26). Teacher professional authority is seen as weaker than before (Brands & Strauss, 2013, pp. 26-34). In addition, women have no priority or advantage in promoting and entering formal roles in relation to men and do not receive gender equality in all dimensions (Greenstein-Mirowski, 2015, pp. 117-141).

This study found that knowledge and awareness of innovative teaching among women is higher compared to male teachers. Therefore, it cannot be said that educated women have only a work style that has "feminine" characteristics such as caring, sharing and supporting, encouraging and supporting (Eddie-Rakah and Chen, 2000, pp. 85-111). Women have high pedagogical strengths and high educational abilities, adapted to the changing environment, compared to men.

The conclusion confirms the research hypothesis that cognitive thinking, emotion and the environmental-social context that includes culture and scientific and technological development, which is necessary in a changing global world, have the greatest impact on the teachers' awareness and professional knowledge and the place of their employment (hypothesis 5).

9. A long seniority of teachers influences knowledge and awareness of traditional teaching

Seniority issue, tested as part of the socio-demographic characteristics found in the first part of the questionnaire and its relation to the major research variables. In Israel, about 60% of teachers are in the 30-49 age group, 60% of all teachers in the education

system are adults, with over 10 years of age. The Jewish sector has seen an increase of 11% since 2010, in the proportion of teachers who have less than 10 years of seniority (Zard, 2019).

Independent test results of the T-test show that there is a significant negative relationship between the seniority of teachers and the opportunities for awareness of the changing environment, that is, the higher the teacher's seniority, the lower the awareness of opportunities for awareness and knowledge of the changing environment (Table 8).

Also, adult teachers, men and women reportedly at significantly higher rates on cognitive difficulties in teaching (charts 2, 3) and expressing greater agreement with traditional teaching compared to younger teachers who express significantly higher agreement with innovative teaching (Table 2). In addition, the young teachers were reported at relatively high rates on school successes in the cognitive field compared to older teachers (charts 8, 9). In a study conducted among teachers from 5 schools in adapting knowledge and technological infrastructure to the "age of knowledge" it was found that, the greater the seniority of the teacher, thus, his control of ICT applications is low, and more, young teachers who graduate from unique training programs, emphasizing educational leadership and entrepreneurship, they are "change agents" at school (Ben David Colicent, 2013, p. 63).

Older male teachers rated the characteristics of environmental learning (the influence of other people's behaviors, which had an educational role in teacher life) significantly higher compared to younger teachers (Table 7), which may indicate adherence to the traditional teaching they have learned in the past. Traditional teachers who have experienced learning from an early age, it will be difficult for them to undo what they were educated on and to receive the innovation. Personal, passive, and encyclopedic knowledge stemming from the teacher's education, both from his childhood and from his training, in most cases unconscious and may be a significant factor in implementing traditional teaching (Alam, 2013. p. 30). Older women teachers reported significantly higher rates of this characteristic ("Lack of influence of experienced people on their work") compared to younger teachers (chart 5). Furthermore, older teachers report higher rates of contrasts and cognitive and socio-environmental dilemmas (chart 17), these findings indicate low cognitive function, low need for collaboration and

teamwork and difficulty adapting teaching to a changing environment. These findings are supported in the research literature. Teachers who learned as students in the traditional way of imparting knowledge and did not experiment with new ways of teaching their beliefs are based on this experience, it will be difficult for them to change their beliefs, unless, they receive training that generates a significant change in building their pedagogical knowledge and awareness of transition from content-focused instruction to a student-focused instruction (Zohar, 2002, p. 3-21).

However, among older teachers, there were also significant negative relationships between the barrier of self-efficacy and the general awareness of traditional / innovative teaching in dimensions teaching approaches and skills integration.

That is, the higher the level of self-efficacy, the higher the awareness of innovative teaching. Years of seniority and long experience give teachers high self-efficacy which is not fully expressed in the teaching work as found in the research findings.

The conclusion confirms the research hypothesis that cognitive thinking, emotion and the environmental-social context that includes culture and scientific and technological development, which is necessary in a changing global world, have the greatest impact on the teachers' awareness and professional knowledge and the place of their employment (hypothesis 5).

Conclusions from the experimental research:

1. The traditional solutions to the designed tasks that results from professional knowledge and awareness of traditional teaching and functioning and traditional characteristics in schools as teachers' workplaces, were found in high scope

From the quantitative and qualitative analysis of the experimental group, it was found that the overall tasks score indicates a low to medium level of modern functioning of teachers (Table 2). Also, the scope of traditional solutions received for the teachers' planned tasks is high and the diversity is very low, as a result of the low use of professional knowledge and traditional characteristics in schools as the work place of teachers.

Most of the teachers in the experimental group presented solutions that were not diverse and used few knowledge types, many solutions were repeated and were well-known standards, most solutions were written as text on a given topic and did not combine an interesting and original detail or using different types of knowledge. The teachers did not use didactic measures or symbolic means or other creative elements, teacher awareness was passively tailored to where they worked. In contrast, teachers who were trained to globalization in their workplace, solve the tasks in a more innovative way and make greater use of their types of knowledge.

Many researchers agree that the more teachers have a richer knowledge of the content they teach, thus, their ability to cope with unexpected tasks has increased (Schwab, 1973. pp. 501-522; Hedges, 2012; Kaniel, 2009. pp. 10-17), in addition, knowing only the domain of knowledge is not enough to teach it, teachers need to be aware of their knowledge, they need to pour meaning into assignments for students and choose appropriate ways of teaching the subject so that it will be understood by the students (Loewenbers et al., 2009. pp. 389-407). Teachers do not always know how to translate all their knowledge and sources, in most cases, due to lack of teacher awareness to their knowledge (Illeris, 2003.p. 227). Teachers' expertise stems from their ability to present ideas, messages and skills through a variety of expressions making those who did not know and did not understand a person with knowledge (Shulman, 1986. pp. 4-14). The school and classroom environment are where the teacher creates his practical knowledge, especially from his understanding and explanation of his situation and ability to recruit the components of personality, experience, and background to find the optimal solution, including selecting appropriate theories (Tabachnik & Zeichner, 1991. pp.1-18). The awareness of the teachers includes the learning of their knowledge from an interdisciplinary perspective including the challenges of the modern world and the science and technology development affecting the teacher (Illeris, 2007.p. 17).

The conclusion confirms the experimental hypothesis that the variety of solutions for the designed tasks, mainly results from the professional knowledge and teacher's awareness and the characteristics of the school as their workplace and, the scope of solutions for designed tasks, which results from the professional knowledge and teacher's

awareness and traditional functioning at the school as their workplace, is high (hypotheses 1,2).

2. The original solutions to the designed tasks that result from professional knowledge and awareness of innovative teaching and functioning include cognitive thinking, emotion and environmental-social interaction, were found in low scope

From the quantitative and qualitative analysis of the experimental group, the teachers presented innovative and varied solutions to the designed tasks, but the scope of these solutions is low. The differences between the solutions are clearly visible and the unique components of each solution which result from the different characteristics of participants in the school environment (Table 3). Significant differences were found between traditional and innovative solutions. Traditional solutions included standard components, such as: passing the lesson messages through a homework check, tasks from a book, using the classroom board in frontal lesson and a verbal explanation of the teacher in frontal lesson. In contrast, the diverse and original solutions presented primarily by young women teachers and also by teachers who have been trained in globalization in their workplace who have solved the tasks more innovatively than all other teachers, such as: playing a competitive track on a variety of birds, use of text by Anton Chekhov, a famous author and playwright, for environmental education implementation, a teaching unit diagram in the context of bird research, using the bird body illustration, "Surprise Box" with different learning games about animal groups and their characteristics.

The variety of innovative solutions, and the differences between them is the result of higher awareness of innovative teaching which includes cognitive thinking, emotion, and social interaction. These are based on the beliefs and perceptions developed during the life of the teacher and have a significant impact on planning, and implementation of tasks in the teaching work program. The identity of the teacher's role and his perception of what is best teaching related to his past experience, to positive memories from teachers who taught him in the past, to childhood experience, family members and the history of events he experienced in his life, all these have shaped his personal data and have an impact on the teaching work of the teacher (Ben-Peretz, et al., 2003. pp. 277-290). The interaction, the dialogue, the relationship is reflected in the teachers work environment.

Teacher knowledge is determined by time and place where people interact with an environment that includes other people, a particular culture that influences the teacher's practical work as well as the effects of science and technology in a changing global world (Illeris, 2003. p. 227), Therefore, teacher awareness is important with a balanced focus on thinking, emotion and the social cultural context in a changing world.

The conclusion confirms the experimental hypothesis that the scope of solutions for designed tasks, which results from the professional knowledge and teacher's awareness and modern functioning at the school as their workplace, is low. (conclusion 3).

3. Teachers who have professional knowledge and awareness of traditional and innovative teaching deal better with closed, open-closed and open design tasks that require originality and ingenuity

According to the quantitative analysis of the experimental group in an independent t test, there were significant differences between teachers who received globalization training and teachers who did not receive globalization training in the score of the overall tasks, in the open task score, in the open-closed task score, in the closed-open task score and in the closed task score (Table 4). Among the teachers who have been trained in globalization, awareness of innovative teaching and modern functioning, the overall score of the tasks was medium, which is higher than the teachers who did not receive globalization training, the score was low.

The same is found in the qualitative analysis of the experimental group. Most teachers had trouble coping with the open task, the open-closed task and the closed-open task, there is a lack of diversity and originality especially among older male teachers. The open task based on the criteria of professional knowledge and awareness of modern teaching and modern functioning, creativity and a certain ingenuity exposing the knowledge, awareness, and capabilities of teachers needed in the modern changing world expressed in teacher solutions that have been trained to globalization. Open-closed task require knowledge and ingenuity but also the use of known methods and a closed-open task requires a schematic activity for use at the first time, in the teaching and learning process and should be implemented other alternative solutions arising from teaching knowledge. Most teachers were able to cope with a closed task by using traditional and

standard solutions and did not deal successfully with the other types of tasks that require more originality and ingenuity, which indicates a higher level of traditional functioning of the participating teachers.

Teachers who were trained in globalization offered more creative solutions and succeeded in open task, open-closed task and closed-open task, compared to the teachers who were not trained for globalization who were less creative and made low use in professional knowledge and have passive awareness.

Teacher training role is to help teachers learn how to work to improve their work (Bransford et al., 2005. p. 5), expand their professional expertise and ability to successfully adapt to systemic, cultural, demographic, and social changes and emphasize being a professional teacher who is aware of the frequent changes in knowledge, in teaching environments, in corporate values and in learning and adapting to them, these teachers challenge the obvious, and can criticize the model set by their teachers and the routines they have acquired through them and instead, understand new complexities and act upon them (Tsui, 2009. pp. 421-439; Bransford et al., 2005. pp. 1-39). also, effective learning is a learning-based problem presented to learners' types of open, complex, and authentic questions from the world of learners that must be solved through several alternatives (p. 40. Ertmer al et., 2009). This learning process requires self-experience, awareness of knowledge, working in groups and dealing with mistakes in the way of experimenting, wondering and discovering (Chia-Wen & Yi-Chun, 2013. p185-190), asking questions, engaging, using thinking and creative skills, and responsibility for learning (Wright, 2013). A conscious teacher of innovative teaching will enable students to take the initiative, solve problems, formulate ideas, think in different situations, flexibility and creativity (Scott, 2014, pp. 23-34). A teacher who encourages students to do things in new ways, various and varied, allow students a new challenge and way of learning, different from what they have known so far, by using open questions (Carmi, Buchnik, 2008, pp. 101-106). An open question allows the learner to expand the solution and creative ability, to reveal knowledge of different kinds, the world view, opinions, thoughts and emotions (Benjamin. 2006, p. 124). In contrast, traditional learning is essentially a process of absorbing information, its encryption and storage are organized in memory so that it can be retrieved when needed in a closed task model (Ausubel, 1963).

Restricting the learner and reducing the creativity, usually settle on a dry factual answer and a limited use of knowledge (Benjamin. 2006, p. 124).

The conclusion confirms the experimental hypothesis that the innovative solutions for designed tasks are offered by the teachers with the professional knowledge and awareness of modern functioning at school as their workplace. yet, traditional solutions for designed tasks are offered by teachers with professional knowledge and awareness of traditional functioning at school as their workplace (Hypothesis 4).

4. Young women teachers deal better with design tasks compared to older teachers, especially with open-closed task that require ingenuity and also using known methods

From the qualitative analysis of the experimental group, significant differences were found among young and older female teachers in the overall task score as well as in the open-closed task score (Table 3). Among young women teachers, the modern level of functioning in the overall score and in the open-closed task was medium, whereas, among older women teachers, it was low.

So is the quantitative analysis of the experimental group. The most original solutions were from young women teachers, they showed some ingenuity in revealing their knowledge, awareness and capabilities and offered a symbolic task, professional knowledge and creative methods. Young teachers, who were exposed to technological scientific development from an earlier age, were more experienced in the past with innovative approaches as learners. New curriculum that seek to integrate learning through technological means for information and communication more suitable for younger teachers than older teachers (Zilbershtrom et al., 2011p. 47). The older teachers in the experimental group used standard thinking patterns and less creativity required in a changing, dynamic environment. Teachers who previously as students, have learned in the traditional way of imparting knowledge and have not experienced learning that focuses on innovative research and teaching, their beliefs are based on this experience and so is their thinking in teaching planning (Zohar, 2002, p. 3-21).

Most teachers in Israel are women, so the teaching profession is traditionally considered a female profession. Over the years, women have advanced in education to management degrees, but at the same time the teacher's professional authority is low and

the public esteem for the teaching profession in Israel is also low (Brands and Strauss, 2013, pp. 26-34).

The conclusion answers the experimental question about which factors most influence awareness and professional knowledge of teachers and their workplace (question 5). The conclusion confirms the hypothesis that the following factors: Cognitive thinking, emotion and the environmental-social context that includes culture and scientific and technological development, which is necessary in a changing global world, have the greatest impact on the teachers' awareness and professional knowledge and the place of their employment (hypothesis 5).

Results for diagnostic verifications were formulated based on qualitative analysis made of interviews, which are as follows:

1. Teachers interpret their subjective knowledge as knowledge of various kinds that develops and improves throughout their professional lives and includes the accumulated knowledge of the unique characteristics of the school environment.

From the findings of the interviews, the personal story of the participating teachers includes: experiences, attitudes and opinions and the subjective meaning that teachers attach to them in their personal, cultural and social context. The personal story of teachers is the expression of how they interpret the knowledge world (Shkedi, 2003. p.36).

In the teachers' story, the different types of knowledge were identified: Knowledge of the "self", Personal knowledge, professional knowledge, environmental knowledge, school and other knowledge which evolved Develop over the years in the career of teachers. In the teachers' statements, they talk about the way they accumulate knowledge as they experience and years of seniority, such as: "I am not really proficient in all the subjects I teach, I have more to complete in this area ...", "I have enough years of experience ... ", " I learn new methods over time ... ", " I get better over time (...)" (statements of respondents).

Many researchers support the claim that professional knowledge is acquired, develops and improves throughout the professional life of the teacher, the experience of teaching and engaging in knowledge enriches the types of knowledge (Bransford, Brown

& Cocking, 1999. pp. 17-39). Teachers' types of knowledge are acquired, developed, and improved with the development of reflective and constructivist awareness that is essential for improving teacher work and promoting educational achievement (Bransford et al., 2005. pp. 1-39), they are influenced by the physical environment of the teachers in their daily work in the field and influence the teacher's behavior in the classroom (Connelly & Clandinin, 1990. pp. 2-14), The knowledge of teachers taught in the school is uniquely developed over time into the culture in which the teacher grows (Buchman, 1987. pp.153-164), teacher knowledge is also determined by culture and the evolution of the changing global world (Illeris, 2003. p. 227). These generalizations confirm the conclusions that emerged from experimental studies.

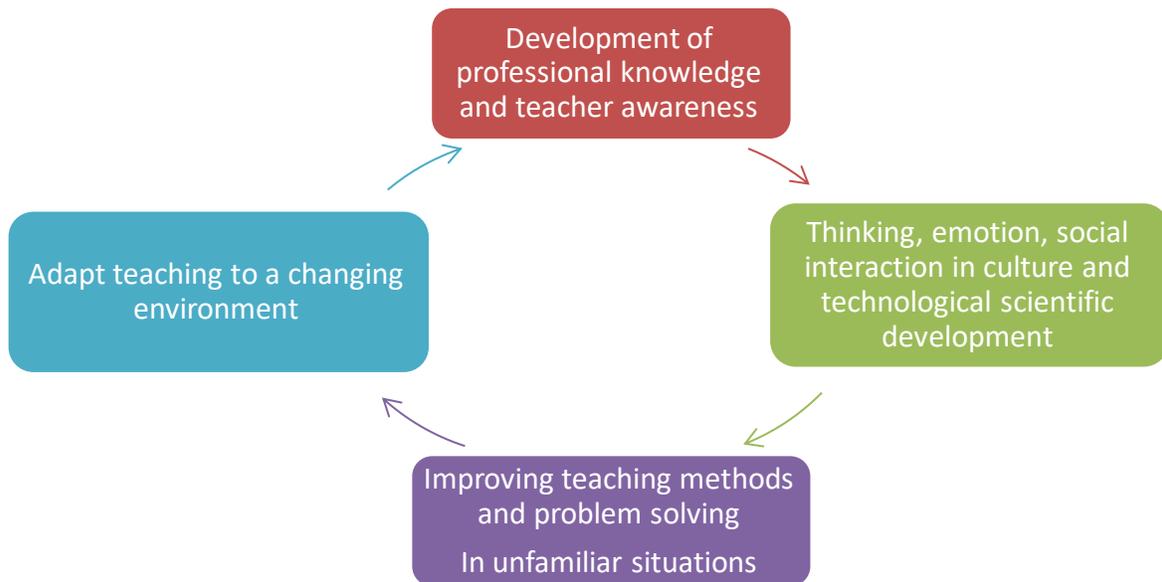
2. Teachers who have experienced design tasks, use professional knowledge and teacher awareness in the cognitive, emotional and social component as a multidisciplinary tool to improve teaching methods and problem solving in unfamiliar situations which expand the professional knowledge and teacher awareness back

The findings indicate that teachers' awareness of teaching approaches in the experimental group is higher than the teachers from the control group. Teachers experienced in designed tasks developed a greater awareness of students' needs in the innovative teaching approach, compared to teachers from the control group who did not experience the designed tasks. The teachers, from the experimental group, expressed an understanding of the need for change, one teacher said she was active in a professional community, others said about the need to use professional and global knowledge resources. Some of the interviewees in the experimental group reported the influence of research theories on their teaching work, as well as the use of pedagogical principles and teaching techniques that are not limited to a particular content area. In addition, higher awareness of innovative teaching was found in teachers who were trained in the effects of globalization as compared to untrained teachers. That is, all of these elements indicate a particular awareness of innovative teaching that has emerged as a result of performing the task in the experimental group and training for the changing environment. In addition, a correlation was identified between teachers 'use of the various types of knowledge and their teachers' awareness of their knowledge, with reference to the school environment

including social cultural characteristics and technological scientific development In Teaching Approaches, Skills Integration, Learning Structure, Cognitive, Emotional and Social Functioning, Personal and Environmental Learning, Opportunities and Barriers to Awareness and School Characteristics as a teacher workplace.

Researchers agree on the importance of awareness for teachers and its critical impact on the practical work of the teacher in the school environment, especially during the challenging contemporary period. According to the learning model of Illeris (2011, p. 46). The importance of awareness in teachers is expressed as they work in the school environment as a result of an internal psychological process in which they construct meaning for knowledge, skills, emotions and social interaction at the same time, by doing this, the teachers develop a broad understanding and ability to deal with the challenges of practical life. Teacher awareness is undergoing a change through what the teacher chooses to pay attention or attention to, therefore, focusing on internal states is an important component that helps a person to change and develop into a person who cares for and nurtures the "self", the other and the environment. Teachers' interaction with school culture and the global culture outside the school, has unlimited opportunities for learning (Illeris, 2003. p. 227) and in the present age it is important that teachers be more aware of the high prevalence of interaction and the power of social influence (Gergen, 1994. pp. 93-143). Teacher Awareness is an acquired learning tool that enables the thought ability to extract a raw reality from the interpretation of attitudes and beliefs as well as the ability to work effectively in the school environment and to change the school experience. As shown in the following diagram:

Figure 15: Professional knowledge and teacher awareness as multidisciplinary teaching tool



Source; own study

The elements selected in the graphic indicate that the conclusions drawn confirm the research hypothesis that the following factors: Cognitive thinking, emotion and the environmental-social context that includes culture and scientific and technological development, which is necessary in a changing global world, have the greatest impact on the teachers' awareness and professional knowledge and the place of their employment (hypothesis 5).

3. Traditional Israeli teachers make little use in the environmental learning characteristics of the school as their workplace

From the findings, teachers make little use of the environment during their work and occupy the workplace in the traditional way as a limiting place and not allowing. older teachers even expressed lower awareness of the use of environmental knowledge compared to younger teachers. The intra-school environment that exists in Israel today is based on the historical structure, organization, and educational attitudes that extend life and force schools to adhere to it even today, although not necessarily appropriate for the contemporary period (Banit, 2017).

Teachers reiterate that they are burdened with stress, time pressure, difficulty in discipline, they fail to do beyond what is required in the curriculum, difficulty in preparing students for exams and the need for achievement prevents them from investing time in collaborating and going out with students outside the classroom is not safe or even a waste of time. At the base of the school structure today is one teacher, who teaches at a particular time, in a particular room, in the school building, a class of 25-40 students, one subject at a time, despite the need for differentiation in learning, there is a lack of flexibility and organization in space and time. The way the "teaching work" is built on a "school system", makes it very difficult to implement it and it occurs very partially, if at all. Rarely, the teacher provides appropriate answers to students who need to learn at a different rhythm, in a different way, or with a different teacher. Due to the school day load, there is almost no attention to the preferences of the students, their interests, to the strengths of students and their personal characteristics beyond their ability to study and examine theoretical content (Banit, 2017).

Only a few teachers talked about environmental learning characteristics, some supporting work in pairs, groups, and learning teams on the assumption that learning is social but does not necessarily agree that they acquire different skills while working in a team, teachers complain that, in practice, they do not learn by watching the activities of other teachers and only two of the teachers talked about using ideas from peers.

Contemporary school should allow teachers "learning spaces" and peer learning within the school, which influence the learning culture and teacher awareness to increase their effectiveness, personal, professional and organizational. This allows educators to properly use existing spaces and create additional spaces, promoting important goals like, belonging, empowering students' skills, enhancing the ability to dialogue, meaningful learning and promoting teaching-learning processes adapted to the 21st Century (Leibowitz, 2013). The school environment largely dictates the organization of personal and professional knowledge and the teacher's teaching pattern (Bruner, 2000, pp. 15-55). (Sarason, 1996. pp. 95-119) (Beck, 2013. p. 26). The less teachers are affected by environmental characteristics, the lower the teacher's awareness of innovative teaching.

In addition, out-of-school characteristics were perceived as negative by teachers, were seen as negative factor, while young teachers and teachers who were trained in

globalization perceived the influence of school as a positive factor but not necessarily use it daily. Change perception about working with the environment, involves learning about teacher awareness in the case of external environmental factors and their increasing influence on the activities of teachers and students in the school (Talias 2011, pp. 1-21).

The conclusion confirms the research hypothesis that the physical and organizational characteristics of Israeli schools are mostly traditional and they define the working conditions of the school and influences the awareness and professional knowledge of teachers of traditional or contemporary education (hypothesis 3).

4. Traditional Israeli teachers make more use in personal learning characteristics and attach more importance to the components that affect them personally

From the teacher interviews, it was found that most teachers were more concerned with the personal learning components that affect them and perceiving themselves at the center of teaching as traditional teachers, from the negative side: low salary, workload, lack of discipline and from the positive side: comfort, a school they know from the past. Also, most teachers talked about the impact of their emotions, feelings, and thoughts on their learning and teaching, with an emphasis on the influence of cultural values, political beliefs, and the personal history of teachers as students in formal educational settings. The traditional approach focuses on the importance of the teacher's personal characteristics. The personal and cultural knowledge of the teacher from his childhood may be a significant factor in traditional education, the traditional learner does not learn to deal with the internal contradictions of knowledge structures and his understanding is reduced to the limits of personal experiences that create his knowledge. Emphasis on personal learning characteristics in the traditional approach will not affect the work and thinking of educators and students to bring about social and cultural change (Giroux, 1993. pp. 452-496).

Most researchers see that effective and meaningful learning, it is not an individual and personal phenomenon, but a holistic human process that always includes a social element with environmental characteristics and takes place in a socio-cultural context (Hattie, 2009. pp. 43-237; Gardner, 1983, pp. 14-26; Piaget, 1972, pp. 489-509;

Illeris 2011. p. 46). Through the awareness of environmental learning the learner develops a broad understanding and ability to cope with the challenges of practical life.

The conclusion confirms the research hypothesis that Israeli teachers are more aware of traditional education and therefore do not use their professional knowledge in diverse and interesting, and in most cases, teach the traditional way in a changing world (hypothesis 4).

5. Young teachers have professional knowledge and awareness of innovative teaching higher than older teachers

The findings indicate that younger teachers are more likely to think outside the box and use their knowledge creatively. From the words of the young teachers in interviews identified creative thinking patterns and motivation for change in teaching. This is also the case with the open task solution in the experiment.

It is found that the younger teachers have the more modern functioning, they showed some ingenuity in revealing their knowledge, awareness and capabilities and offer creative solutions. Young teachers were born and raised in the modern era and were exposed from an earlier age to technological scientific development and innovative educational theories than the older teachers, probably also more experienced in the past in innovative approaches as learners.

In contrast, older teachers were found to be more traditional than younger teachers in all categories tested and they recycle what they have already been taught. In the words of the older teachers were identified thinking templates that limit the personal flow and creativity required in a changing and dynamic environment such as emphasizing their students' central place and importance of their experience, equipment and external conditions, and some critiques have also been identified regarding the perception that the student is at the center of the classroom. Researchers have found that teachers who have learned and grown in the traditional way and have not experienced innovative teaching will teach their students the traditional way (Zohar, 2002, p. 3-21; Lem, 1973, p. 9-49) and may even resist to innovative teaching because their beliefs about learning, built in their minds from childhood, will become worthless if they accept innovation (Alam, 2013. p. 30).

In Israel, on average, the percentage of young teachers in primary education schools is lower than the percentage of older teachers, about 40% of young teachers compared to 60% of older teachers (Central Bureau of Statistics, 2018), this is because more and more young teachers are leaving the teaching profession in Israel, one in five young teachers, 19.7%, abandoning the profession in the first three years of work, in addition, the average psychometric score of teachers, who leave the education system, higher than those of teachers who stay in the education system (Central Bureau of Statistics, 2019). The reason is that the education system does not reward teachers for talent or hard work and creativity, but mainly according to seniority. The salary of teachers in Israel rises with the rise in the senior years, the salary of new teachers is about half the salary of teachers over 50. It was found that leaving the teaching is a choice arising from difficulty in meeting multiple job requirements faced with few resources and not because of teachers' unwillingness to integrate into teaching, the encounter with the occupational environment at school involves the young teachers with feelings of frustration, this phenomenon has negative effects on the conduct of the education system and on educational opportunities (Arbiv-Elyashiv and Zimmerman, 2013).

The conclusion confirms the research hypothesis that the cognitive thinking, emotion and the environmental-social context that includes culture and scientific and technological development, which is necessary in a changing global world, have the greatest impact on the teachers' awareness and professional knowledge and the place of their employment (hypothesis 5).

6. New young teachers find it difficult to apply innovative teaching in the school as their workplace and adapt to traditional school realities

The findings of the interview show that young teachers who have just completed teaching training, assuming they have been exposed to innovative teaching methods in their training over the past decade and they have control in advanced technologies compared to older teachers, in practice, they adapt to the existing traditional school realities and rarely make use of innovative teaching methods and implementing changes. According to the literature, the new teachers are entering the system, insecure and full of concerns about the fulfillment of their abilities (Feiman-Nemser, 2003. pp. 25-31), However, it has been found in interviews that when the new young teachers seek to

express their knowledge and dare to hold different classes where students are active and not quiet, these teachers do not receive sympathetic treatment, and are sometimes perceived by the management and other staff teachers as "not holding a class". For example: "...There are things I learned in college and I do not apply within the school. I choose not to take the students on a study tour What if a child falls or something happens to him?". "Working in groups is dynamic and a bit noisy, if there is no quiet in the classroom and learning is noisy, then there are those who will tell you, that you have no control ...". "If the students learn while playing, then they will tell you - why are they playing and not learning? ...". "Am I supposed to keep students always quiet? ... and what about active learning? ...". "... To do other things, support is needed. Without cooperation, it would be impossible ..." (selected statements of the respondents).

Studies show that there is a gap, between the realities within the school and the expectations of young teachers from the teaching profession. Young teachers coming to the schools full of motivation and new knowledge that they want to apply, but they are asked to adapt to what exists, integrate and learn from the older teachers with traditional awareness, they experience difficulty in dealing with the teacher role in the reality in which they are required to act as ordinary teachers (Arbiv-Elyashiv and Zimmerman, 2013). The clash between what they learned, the hope and willingness of the new teachers and the reality that emerges from the field "Fitting" them and forcing them to fight for their survival (Pritzker and Chen, 2010, pp. 94-134). Beginning teachers are expected to integrate with their students, integrate into teachers' rooms and understand the organizational culture in the institution where they are employed, meet parents' demands, display maximum control over the disciplinary material and meet the expectations of those around them just like senior teachers and all this before their professional identity was formulated (Nasser-Abu, Fresco and Reichenberg, 2011, pp. 91-116). Beginning teachers who choose to stay in the system adapted to it, due to the fact that their ability to apply the theories they learned in the field is limited (Pritzker and Chen, 2010, pp. 94-134). In addition, they understand that in order to belong to the workplace, they must learn the organizational culture and internal politics of the school in which they work and to work according to the behavior of this system (Maskit, 2013), because of this, in most cases the new teachers prefer not to lead change.

The conclusion confirms the research hypothesis that the physical and organizational characteristics of Israeli schools are mostly traditional and they define the working conditions of the school and influences the professional knowledge and awareness of teachers of traditional or contemporary education (hypothesis 3).

7. Traditional Israeli teachers state that their teaching is innovative but implement traditional teaching

From the findings of the interviews, a gap was found among the traditional teaching approach in day-to-day work of the control group teachers and their statements about the importance of peer learning and collaboration, the thinking skills development, and extracurricular learning that represent innovative teaching. The same goes for integrating technology and computers into teaching, most teachers integrate teaching at basic levels, such as reading information instead of a textbook, or presenting a video or presentation at a frontal lesson, rather than as "added value" and for making a change in their teaching, but teachers present it as innovation.

Researchers agree that the use of technology in schools often serves existing pedagogy, while it should create another pedagogy that is learning from engagement that transfers responsibility to the learner and requires him / her to perform independent learning processes, teamwork around authentic problem solving and performing a task long-term based on understanding, although teachers are familiar with these principles and their teaching methods, learning combined with technology is still characterized by traditional methods, making it difficult for learning processes in high-heterogeneity classrooms (Singer, 2014. p. 96).

Traditional teachers are unaware of traditional and innovative teaching and so there is a gap between their statements and the actual teaching work. Combination of awareness for traditional and modern teaching offers a solid foundation for developing pedagogical practice and extending the boundary of the theory of education (Giroux, 1993. pp. 452-496; Doll, 1999, pp. 9-17). Awareness of thinking and doing processes helps teachers map their abilities, needs, and expectations, understand what is driving their behavior, plan their future moves, and set goals for them to meet the new requirements.

The interesting thing is that the interviewed teachers, from the experimental group and teachers who were trained in globalization who are somewhat innovative in teaching, did not declare their teaching way as innovative as the control group teachers but also did not implement innovative teaching but expressed disapproval for not being able to implement innovative teaching due to the traditional characteristics of the school as their workplace and by doing so, their awareness of their way of teaching was expressed.

The conclusion confirms the research hypothesis that Israeli teachers are more aware of traditional education and therefore do not use their professional knowledge in diverse and interesting, and in most cases, teach the traditional way in a changing world (hypothesis 4).

Then the conclusions of the two types of research used were written. And here they are:

1. Teachers who have experienced with design tasks have a higher awareness of innovative teaching compared to teachers who have not experienced with design tasks

Independent t-test sample results for study groups (Table 2). show that there were significant differences between the experimental group and the control group in all the measures examined: awareness of professional knowledge, self-knowledge, professional activities, application of knowledge, barriers and knowledge of the environment and school. Among the experimental group found a significantly higher awareness in these categories compared to the control group. The teachers in the experimental group exposed to designed tasks and experiment with inventing creative solutions for designing study topics in diverse ways of teaching, therefore they are more aware of innovative teaching and understand what is expected of them. Researchers agree that teacher training combines finding solutions and thinking about their practices while being aware of learning processes, it is the key factor in improving teaching quality (Bill & Melinda Gates Foundation, 2014. pp. 3-16). A conscious teacher chooses to give up the convenience of sticking to the standard solutions and what he has previously known and search, again and again, for new information that needs to be adjusted, clear it and filter it, keep some of it and abandon another. The constant search for solutions and evaluating the solutions, in collaboration with others, makes him a conscious professional that

change and renewal are not a threat to him, but rather challenge him (Berliner, 2001. pp. 463-482).

No significant differences were found between the experimental group and the control group in an awareness of peer and student knowledge. The explanation is that a teacher's peer knowledge cannot be examined through designed tasks that the teacher performs in a short time, but in interaction with colleagues over time. Peer knowledge is examined within a social framework in which the teacher is promoted with the help of peers (Vygotsky, 1978. pp. 34-40).

The conclusion confirms the research hypothesis that Israeli teachers, who are aware of the traditional education and contemporary education, will use their professional knowledge in diverse and interesting (hypothesis 2).

2. Young teachers with higher awareness of innovative teaching compared to older teachers.

Results of independent t-test sample analysis in the context of differences consciously by sex and seniority (Table 3), show that there is a higher awareness among young men of self-personal knowledge, knowledge of colleagues and students, professional knowledge, professional activities, and barriers than older men's awareness of the experimental group and the control group. also, there is a significantly higher awareness among young women of self-personal knowledge and knowledge of the environment and school compared to older women's awareness of the experimental group and the control group. That is, the awareness of innovative teaching of the young teachers expressed in personal characteristics (self-personal knowledge, professional knowledge, barriers) and environmental characteristics (knowledge of colleagues and students, knowledge of the environment and school, professional activities. It is found that the more teachers' learning is influenced by personal and environmental characteristics, thus, the teacher's awareness of innovative teaching that includes teaching approaches and higher skill integration and vice versa.

Interaction between personal ways of thinking and new environmental experiences creates the balance between the cognitive system that includes personal learning characteristics and the outside world that includes environmental learning characteristics, only in this way does change and development occur (Piaget, 1972, pp.

489-509). Optimized learning takes place through a combination of social interactions and internalization in internal mental structures (Vygotsky, 1978. pp. 34-40). Teachers aware of personal and environmental learning characteristics,

Build meaning for knowledge, skills, emotions and social interaction and develop a broad understanding and ability to deal with the challenges of the practical life and challenges of the modern world with emphasis on the development of science and technology influencing the teacher (Illeris, 2003.p. 227; Illeris, 2007.p.17).

The conclusion confirms the research hypothesis that cognitive thinking, emotion, and social-environmental contexts arising from seniority and which include culture and scientific and technological development needed in a changing global world, have the greatest impact on teachers' awareness and professional knowledge and workplaces (hypothesis 5).

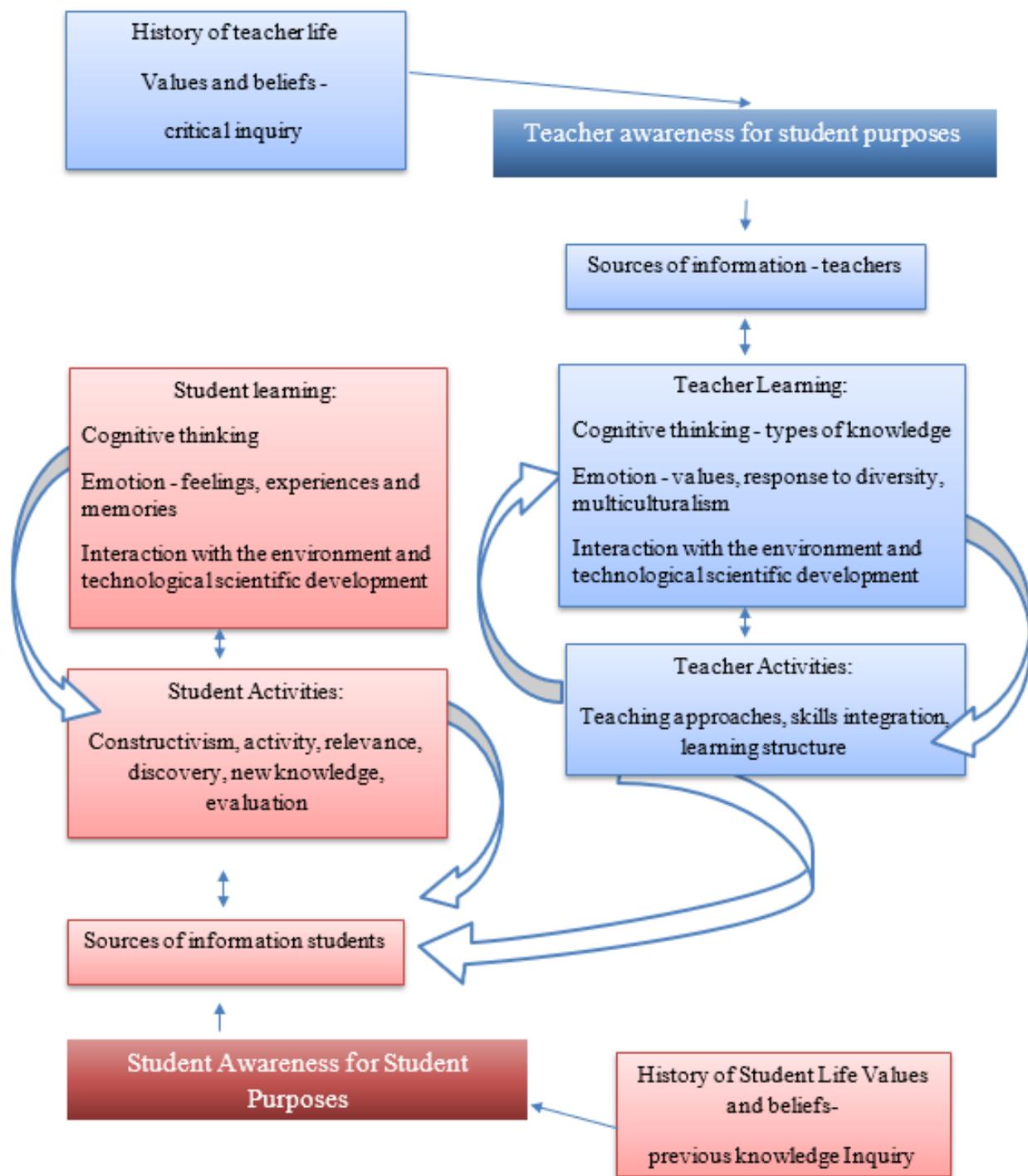
3. Women teachers who have experienced with design tasks have a higher awareness of innovative teaching compared to man teachers who have experienced with design tasks

Results of independent t-test sample analysis about the differences in awareness by seniority (Table 3) show that women teachers have a significantly higher awareness for professional activities and knowledge of the environment and school compared to men. It was found that teachers' gender influences awareness of traditional / innovative teaching and that women with more innovative teaching awareness than male teachers.

The gender issue, female and male teachers, was examined as part of the socio-demographic characteristics and its relationship to the main study variables. although the female majority exists in Israeli schools, the chances of male teachers taking part in formal educational management positions are higher than women's chances (Greenstein-Mirowski, 2015, p. 118). Men tend to choose teaching as a means of reaching management positions (Addi-Racah, 2005). This study found that awareness of innovative teaching among women is higher in relation to male teachers, therefore, female teachers cannot be attributed to a work style that has only "feminine" characteristics such as caring, sharing, encouraging and supporting (Addi-Racah & Chen, 2000, pp. 85-111). However, women have pedagogical and educational strengths, adapted to the changing environment.

The conclusion confirms the research hypothesis that cognitive thinking, emotion, and social-environmental contexts arising from gender, and which include culture and scientific and technological development needed in a changing global world, have the greatest impact on teachers' awareness and professional knowledge and workplaces (hypothesis 5). The interrelations between variable and verified facts make it possible to construct claims about the nature of the analyzed relationships with a better understanding of them. It also contributes to the development of prospective visions and creative options regarding the issues under consideration. Before this future proposal will be presented, the project of the model, which occurred in the conducted verifications, was initiated. And here is the constructed model below:

Figure 16: Multidisciplinary model for developing professional knowledge and teacher awareness for innovative teaching in a changing environment



Legend

Awareness of personal learning characteristics - Single communication



Awareness of environmental learning characteristics - Communication within an organization

Source; own study

The above model provided with a visual diagram of a flowchart containing a sequence of actions for teachers. The flowchart is divided into two parts, one focusing on the actions of the teachers for planning teaching methods which lead to the second part of the flowchart. This section focuses on the actions of the teachers performing teaching methods according to the design. Each rectangle in the chart, represents one action and the connections between the rectangles represent the types of communication which teachers must do between implementing the actions.

6.2. The vision of the theoretical model of professional knowledge and teacher awareness in the workplace

Professional knowledge and teacher awareness model are a multidisciplinary tool for improving and changing teacher "teaching styles" according to the changing environment. Professional knowledge and teacher awareness of innovative teaching is influenced by **History of teacher life** in formal and informal educational settings as well as personal and cultural values, political and social beliefs. At this stage, it is important to make a critical inquiry in order to avoid early judgment that may be implicit in practice, this process helps teachers become aware of the personal characteristics that influence teaching.

Teacher awareness for student purposes includes adapting to the curriculum's goals and responding to students' educational needs. This process affects finding and using a variety of **Sources of information** for teachers to use in the learning process of teachers.

Teacher learning is based on three dimensions:

1. Cognitive thinking related to the curriculum and learning materials that the teacher has to study in depth

2. Emotion that includes feelings, experiences and memories, values, responding to the various intelligences identified in the classroom, students with special and multicultural needs.

3. Interaction with the environment - the environment within the school, the physical and organizational structure and the school culture that includes: language, learning spaces, learning by disciplines or multidisciplinary, types of assessment and also, the out-of-school environment that includes parents, a community and the wider society, technological scientific development that invites content adapted to socio-cultural, economic and technological change processes and dealing with current issues and dilemmas that develop socio-environmental awareness.

Teacher learning is also affected and influences the teacher's functioning at school expressed in **Teacher activities** with emphasis on

Teaching Approaches - Choosing the most appropriate teaching style for students in a specific situation, a work style can consist of a variety of routine activities or prefer one type of knowledge depending on the target population in a changing environment (see Teaching Approaches in Chapter 1).

The planning of activities will involve a combination of skills and active learning processes, such as, communication skills, high-order thinking skills and exploration processes, skills of using technological tools, personal development skills and sensitivity to the subjectivity of others, life and career skills, social and multicultural, self-learning (see skills breakdown in Chapter 2). The planning of activities will also be based on a flexible learning structure that defines the time frame and place in which the activity takes place.

The **sources of information for students** are first affected from the personal **history of students** as well as personal values and cultural, political and social beliefs. It is important to check with student's prior knowledge, this process helps students become aware of their personal knowledge, misconceptions that affect the learning process. **Student awareness for student purposes** allows students to select content for deepening and self-learning under the guidance of the teacher. Accordingly, the teacher and the students will find sources of information for the students. It is important for students to

understand why they chose learning objectives and how information sources help them in the learning process, by doing so, students will become aware of the learning objectives.

Student activities serve learning objectives focusing on building students' knowledge according to the constructivist approach, active learning, the relevance of the topic to students' daily lives, inquiry learning and discovery, creating new knowledge and assessment tasks. These activities are carried out in conjunction with student learning processes according to three dimensions:

1. Cognitive thinking that refers to content and thinking skills that rely on content
2. Emotion that includes feelings, experiences and memories in the context of the content
3. Interaction with the environment between students, between students and the teacher and between students and the environment outside the school that includes the technological scientific development, socio-cultural, economic and technological change processes, dealing with topical issues and dilemmas that develop social and environmental awareness.

During teacher and student activities there are mirroring elements, transformative learning and metacognitive on two levels:

-Awareness of personal learning characteristics carried out through the teachers and students' reflection on themselves and the sources of information they will use.

-Awareness of environmental learning characteristics that develops through reflection within an organization and is expressed in teamwork, learning community's collaboration between students and collaboration between students and the unique characteristics of the learning environment in a multidisciplinary perspective. It is an effective routine that creates a common language and enables decision-making, encourages engagement and implementing innovations, by doing so, teachers may change the school experience. The end of this part of the model leads the teacher to a stage of a variety sources of information for student that will serve the students' goals. The studied dimensions are necessary to lead the reflection process taking into account the personal and environmental area, which are important for both teachers and students. They focus on three main questions:

1. What has been done effectively and correctly and should continue to be done in the future?

2. What was done incorrectly, partially or ineffectively and needs improvement?
3. What needs to be done to improve or repair the work?

The mirroring processes allow teachers and students develop awareness of their teaching and learning process, learn lessons and improve teaching and learning. It is important for teachers to teach students the principles of reflection and we will build an "indicator" on the learning process that helps independent learning professional use of different types of knowledge.

6.3. Requests addressed to the teacher's practice

By proceeding to clarify the recommendations for teaching practices, the recommendations began to be recognized by noticing recommendations covering the development of knowledge and awareness of the professional corresponds with the unique features of the school environment as a place of learning and professional work. Teachers translate school culture for teaching practices which come back, reinforcing school culture. Therefore, it is of critical importance to create opportunities for professional knowledge development and awareness of environmental characteristics with the school environment, such as:

- School curriculum for teacher collaboration and peer learning
- Creating opportunities for interaction between students in formal and informal activities
- Regularities for interaction between role-owners
- Students' personal acquaintance through school social games
- Learning spaces to response to differences between students
- Development and regular use of learning spaces in the school environment
- Establishing collaborations with community members
- Finding sources of information as supporters of thinking in the school environment
- Integration of experts outside the school
- Establishing collaborations with parents in the school program
- Flexible use of time
- Experiential activation of students out of the classroom

- Community social interaction
- Developing a conceptual system and study products in the environment
- Using a digital environment

All of these create a common language that encourages engagement and promotes innovation.

The findings of the study indicate teachers' difficulty in making change and influence the school's organizational cultural structure. This is due to barriers found by the teachers in this study, arising from fear and personal incapacity to introduce innovation and changes in school culture. The more the school environment allow opportunities for awareness development in the school environment, the more teachers will use the physical and organizational characteristics of Israeli schools, the level of barriers will go down and they can promote changes in school culture.

By doing so, their self-capacity will increase and with it the professional authority and public appreciation of the teaching profession.

In order to adapt the education system to the postmodern characteristics, it is of critical importance to train teachers for the effects of globalization in education through professional development planning of teachers which is adapted to a changing environment and deals with postmodern ideas that include:

- What is globalization, the causes of globalization and its implications for education
- The importance of science and technology development in education
- Teacher awareness of traditional teaching and innovative teaching
- Awareness of traditional and innovative teacher functioning
- Awareness of teachers' types of knowledge
- Awareness of personal and environmental learning characteristics
- Awareness of the need to replace innovative teaching methods
- Using teaching methods adapted to students' differential needs
- A combination of skills adapted to the 21st century
- Flexible study structure
- Emphasis on humanistic-value aspects
- Intelligent use of technology supports pedagogy
- Interact with the school environment and outside the school

- Interpreting the curriculum with a critical view of the programs and their evaluation in the context of modern social issues
- Exposing teachers' prior knowledge and beliefs through a reflective process while raising teachers' awareness of cultural beliefs and values inherent in teachers
- Handling Barriers (Self-Ability and Fear)
- Identify the opportunities to develop awareness
- Implementation of the traditional education system with a modern education system
- Creating and designing comprehensive multidisciplinary teaching activities

In order for modern professional thinking and teacher knowledge to appear at all levels of teaching and learning, professional development must be emphasized the transition from traditional solutions to modern solutions, showing the desired and least desirable educational changes in which, the teacher participates. Introduce a wide variety of teaching styles including focusing on educational partners who display a diverse level of knowledge. In doing so, the system will expand its messages seeking to implement innovative activities and build a modern education. Quality professional development integrates processes like a demonstration of preferred teaching strategies.

Teachers who are actively learning and reflecting about how they learned and the effectiveness of teaching strategies from a learner perspective, can teach in different ways from how they learned as children.

The model for developing innovative teaching and its guidelines may serve as a basis and support for teacher learning community settings and in teacher training settings for the effects of globalization as well as teacher self-learning.

Developing teachers' awareness of environmental characteristics, emphasizes the need for communication that occurs within an organization. Implementing collaborations and teamwork, are required especially today, for dealing with complex tasks and provide opportunities for developing teacher education for innovative teaching and effective use of teachers, in the characteristics of the school as the workplace of teachers. For that, it is suggested to have Communities of learning to promote and implement innovative pedagogy within the school, which will constitute professional development frameworks involved in teaching work, in practice. Learning communities will include partners from

within the school (Teachers, students, management) and various relevant factors outside of school. Community members work in groups and develop an idea through a variety of cognitive abilities, emotional and social, while sharing roles among the group members, so that there is effective utilization of all types of knowledge of all members of the community and seeing the big picture by all members of the group.

The implementation of learning communities within the school requires an organizational environment that supports teacher communities which will help individual teachers work collaboratively with other teachers and partners. In addition, required systemic standardization, allows predetermined times for learning communities in the daily work routine of teachers, as well as diverse physical learning spaces, for implementing learning communities. Also, providing "incentives" to teachers in learning communities, which implement innovative pedagogy within the school. In order for teachers to take responsibility for the necessary changes, they need to know that the school appreciating changes and innovation and that they receive support for their efforts to promote change.

Collaborations in Learning Communities will allow, to develop among teachers interdisciplinary and multidisciplinary awareness and also, forming autonomy and a unique school identity that is especially needed today in a globalized world. Learning communities will help teachers initiate school innovation around a common and central subject for learning and form partnerships with teachers from various disciplines within the school and various experts, outside the school, for implementation the subject from different aspects.

The modern age is an era that is changing dramatically and rapidly, the rapid social, scientific and technological changes, it makes it difficult for teachers to apply scientific theories they have learned about teaching and to adapt to the changing reality in future-oriented directions of uncertainty.

For dealing with this issue, it is suggested for teachers to design an annual teaching program of generic skills which cross disciplines and relevant to diverse and unknown situations. for the generic skills it is necessary to adjust different content from the state curriculum. The teaching program will include 4-5 skills per year, the plan will be spirally built, so the skills will be taught again each year depending on the age of the

learners and the development of their cognitive thinking. Each year the student learns the skills he has learned before at a different depth level and in new contexts. This is how the spiral circle expands and deepens. That is, the work program will not be content-focused as it is today, but will be focused on generic skills that are taught in the context of content, which are the following generic skills:

1. Communication, sharing, and language skills - learners are required to be communicative types with the ability to convey messages while sharing social learning that includes listening, expressing attitudes and emotions
2. Information processing skills - finding, organizing, processing and presenting information, written and oral ability
3. High thinking and self-Learning skills - exploration skills to create new knowledge, develop the learner's awareness of his unknowing
4. Technological use skills, ethics and network protection
5. Personal development - an effective self-presence of the active person, connected to his or her emotions and thoughts, aware of the subjective reality of his existence and culture
6. Life and career skills - flexibility and adaptability, initiative and self-direction, self-belief, self-confidence, social and intercultural skills, productiveness and responsibility, leadership and responsibility, personal motivation, energy and authenticity.

In an age when information is available and accessible, a skills-focused work program will emphasize the need for "how" to learn and not "what" to learn, equip learners with thinking tools which will help them to cope successfully in a changing world.

The proposed implementation of the curriculum along with definite conclusions from the conducted research - on younger teachers (women and men) affects the traditional way of using knowledge and sown teaching awareness, it was found that young teachers (women and men) are more aware of the innovative style of work and use environment than older (women and men). On the other hand, in Israel on average, the percentage of young teachers in primary education schools is lower than the percentage of older teachers, about 40% of young teachers compared to about 60% of older teachers (Central Bureau of Statistics, 2018), this is because more and more young teachers

leaving the teaching profession in Israel, one in five young teachers, 19.7% abandon the profession in the first three years of work. In addition, the average psychometric grade of teachers who leave the Hebrew education system, higher than those that remain in the system (Central Bureau of Statistics, 2019).

In order to increase and retain the number of young teachers, it is suggested that the following policy be taken:

1. Reward teachers by talent, hard work and creativity and not just by seniority.

By providing incentives for young teachers based on teaching quality, those who apply to study teaching, will be among the "cultural capital" of the young people in Israel.

2. Support and institutionalized support of new teachers to avoid difficulties in dealing with multiple job requirements, through professional escorts trained for this position only, by the Teaching College as part of the curriculum for teaching certificate. This is to ensure that support for new teachers is institutionalized, intensive and professional. It is suggested that students be included into the permanent and future work of the teachers, already in their studies. That way they will be able to step into teaching work gradually.

3. Enable broad leadership roles for young teachers and equality of educational opportunities. The education system in Israel is based on ideas set many decades ago that shape the physical and organizational environment of schools to date, while it asks teachers for innovation, it is appropriate to keep "Nice to demand and nice to fulfill the demand yourself". Retaining young teachers in the system will prevent brain drain and promote innovation in education, resulting from knowledge that is knowingly used.

6.4. Generalizations from all theoretical and research analyses

- 1. Developing teacher awareness and professional knowledge: Cognitive, emotional and social which includes technological scientific development is necessary as a multidisciplinary tool for adapting teaching to the changing environment**

2. Teacher knowledge is subjective and develops throughout their professional lives as a mosaic of various types, including the accumulated knowledge of the unique characteristics of the school environment

The physical and organizational characteristics of Israeli schools are mostly traditional and they define the working conditions and affect professional knowledge and awareness of traditional education teachers.

3. Israeli teachers have a higher awareness of traditional teaching and functioning and therefore do not use their professional knowledge in diverse and interesting ways, and in most cases, teach in the traditional way in a changing world

Traditional awareness of Israeli teachers for the different types of knowledge affects the use and diversity of teaching styles, adapted to the new needs of students in a changing environment. The level of use of teachers participating in the various types of knowledge is low, therefore, the use of diverse teaching styles and their adaptation to the needs of students is low. In addition, traditional Israeli teachers declare that their way of teaching is innovative but in practice, they apply traditional teaching.

4. Traditional personal learning characteristics and barriers to awareness affect traditional teaching. A combination of personal and environmental learning characteristics affects innovative teaching awareness

In contrast, Israeli teachers make more use of personal learning characteristics (the influence of cultural values, political and social beliefs, personal history of teachers), they attach more importance to the issues that affect them personally and perceiving themselves at the center of teaching as traditional teachers, from the negative side: low wages, workload, lack of discipline and from the positive side: comfort and a school they know from the past.

The perception of the "self-ability" barrier among teachers in this study was found to be high. Teachers who report lack of self-ability and personal confidence of the teacher will have difficulty developing awareness to the changing environment and will find it difficult to teach life and career skills such as, initiative and self-direction, self-belief, self-confidence, productiveness and responsibility, leadership and responsibility, because of their constant need to survive and their lack of availability for learning.

5. Israeli teachers who have been trained in the effects of globalization, have an awareness of innovative teaching and functioning, in the cognitive, emotional and social dimensions

6. Women teachers have a higher awareness of innovative teaching compared to male teachers.

Significantly higher awareness of innovative teaching was found in women compared to men. Women teachers were found to have higher knowledge rates in the categories of: self-knowledge, environmental knowledge and knowledge of others. Among women teachers, higher awareness was found for general innovative teacher functioning and in the cognitive dimension, also found among women teachers' significant positive relationship between teacher learning for teaching approaches and teaching styles. It was also found that women teachers who have experienced the tasks designed for innovative teaching, have a higher awareness of innovative teaching compared to male teachers who have experienced design tasks for innovative teaching. Women teachers deal better with diverse tasks for innovative teaching and especially open-closed tasks that require originality and creative thinking.

7. Young teachers, have a higher awareness of innovative teaching compared to older teachers, but adapt to traditional school realities

Significant differences were found between young and adult teachers in the conclusions of the four research tools in awareness of traditional / innovative education.

As the seniority of the teacher increases, thus, awareness of innovative teaching in a changing environment is lower. Also, older teachers, men and women, report significantly higher rates of cognitive difficulties in teaching and tend to express greater agreement with traditional teaching compared to younger teachers who tend to express significantly higher agreement with innovative teaching.

In addition, younger teachers report higher rates of school successes in the cognitive field compared to older teachers. Older women teachers have reported significantly higher rates of environmental issues "lack of influence of experienced people on their work" compared to younger teachers. Older teachers report higher rates of contrasts and dilemmas, cognitive and socio-environmental, which may indicate low

cognitive function, low need for teamwork and difficulty in adapting teaching work to a changing environment.

8. Teachers who are aware of innovative teaching and aware of personal and environmental learning characteristics, use innovative teaching methods and thus, change the traditional organizational-cultural structure of the school.

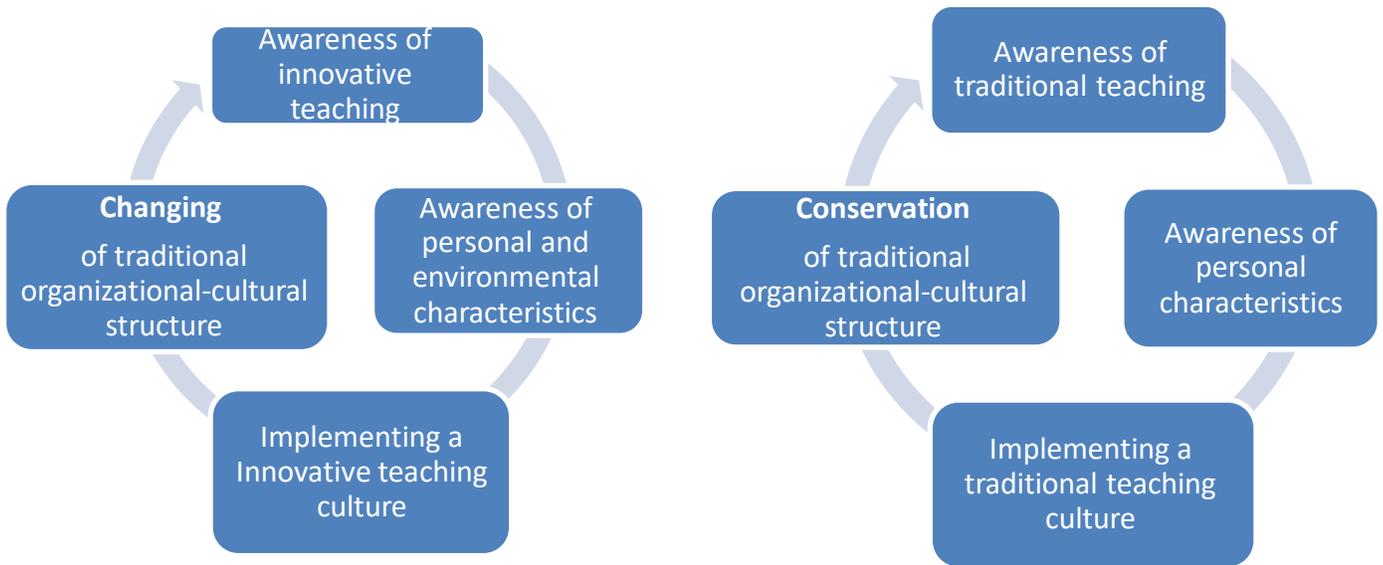
In contrast, teachers who are aware of traditional teaching and are not aware of environmental learning characteristics, use traditional teaching methods and thus serve, preserve and strengthen the traditional organizational cultural structure of the school.

Professional knowledge and awareness of a teacher are expressed in teacher interaction with the unique characteristics of the learning environment. Teachers translate school culture for teaching practices which strengthen the school culture.

The findings of the study indicate teachers have difficulty making a change in teaching and influence the school's organizational cultural structure. This is due to lack of support from the educational staff and administrators, who see innovative learning, which includes experiences, extracurricular and student learning is at the center of learning, as one big chaos that threatens teacher authority. In innovative learning, in most cases the students do not sit in chairs and listen quietly, but the students are active and there seems to be a "mess" in the classroom according to the traditional concept and maybe the students are not learning but playing.

Teachers who lose their authority, in most cases, they need external discipline, as a result, teachers' professional authority is seen as weaker than before and public appreciation for teachers, is low. The negative image and their disquieting status in this study, rising due to barriers that teachers have raised, stemming from fear and lack of self-ability to instill innovation and changes in school culture, in this way teachers preserve the traditional school structure and they use traditional professional knowledge with specific awareness. The characterized factors are presented in the figure below to illustrate the reflections made in a graphic way.

Figure 17: The connection between the organizational and cultural structure of the school and awareness of teaching



Source; own study

In conclusion

This study focused on professional knowledge and awareness of traditional or innovative teaching in a changing environment which were measured in two types of research; diagnostic and experimental. Thanks to the tools selected for the types of verifications in which the variables were analyzed in accordance with the planned scheme (Chapter 4), it was possible to obtain a rounded reliability of the respondents' answers. Through them, identical categories were measured from various aspects which have contributed to many repetitions and the reliability of the research results, and, in order cover the variables as much as possible from different angles of inquiry and answer all the research questions.

The study found that Israeli teachers with more professional knowledge and awareness of traditional teaching and functioning, therefore, their professional knowledge is not used in diverse and interesting ways, and in most cases, teach in the traditional way in a changing world. However, it has been found that Israeli teachers who are trained for the effects of globalization, have awareness and innovative function in the three cognitive, emotional and social dimensions. It was also found that teacher knowledge is subjective and evolving throughout their professional lives and includes knowledge of the unique characteristics of the school environment. Traditional personal learning characteristics and barriers to awareness affect traditional teaching awareness. In contrast, individual and environmental learning characteristics influence awareness of innovative teaching. Teachers aware of innovative teaching use innovative teaching methods and thus change the traditional organizational-cultural structure of the school. In contrast, teachers who are aware of traditional teaching use traditional teaching methods and thus serve and strengthen the traditional organizational cultural structure of the school. In the context of gender and seniority, Israeli women teachers have a higher awareness of innovative teaching than male teachers and young Israeli teachers have a higher awareness of innovative teaching compared to older teachers, but they adapt to the existing traditional school reality. Further to these, the study concludes that professional knowledge development and teacher awareness: cognitive, emotional and social, which includes technological scientific development is a necessary multidisciplinary tool for teachers to adapt teaching methods to the changing environment. Accordingly, a teacher

awareness model was built combined set of guidelines as a tool for changing teachers' teaching methods.

The results of the study focus on the subjective point of view of the respondents and the impact of professional knowledge and teacher awareness on teaching work in the school environment as their workplace. In addition, to the importance of investigating professional knowledge and teacher awareness as perceived by teachers themselves as part of their professional world, the study examined the use of professional knowledge and teacher awareness of traditional or innovative teaching in a practical way, by experimenting with solutions for designed tasks to develop innovative teaching through experiment, in which a comparison was made between the experimental group and the control group and the impact of the intervention on the interrogators.

It was found that all research hypotheses were confirmed, it was also found that the treatment performed in the experimental group make a difference for the participants who experienced the designed tasks. Selected teachers implemented them in accordance with a selected research sample. It included science and technology teachers in elementary schools who teach in Jewish schools in the north of the country in the Israeli education system.

The considerations for selecting teachers from the Jewish sector are: both innovative and traditional education can be seen in Jewish schools more accessible and wider. Due to the physical and multicultural conditions (Belikoff, 2014, p. 10-20), Therefore, the expectation is that in the Jewish sector schools will be a higher awareness of teachers to the changing world. Also, the selected teacher population is diverse and fits its characteristics to the Israeli teacher population, therefore, it represents the population of Israeli teachers and inclusiveness is not impaired, however, this should be taken into account when drawing conclusions in relation to all teachers from districts that were not sampled in this study.

In future research it is suggested to explore professional knowledge and awareness of school principals for traditional or innovative teaching, as the leader of the educational institution they have a great impact on the school's corporate organizational culture Mainly due to the fact that in recent years the Israeli education system promotes

autonomy and "self-management" Enabling managers to lead a unique vision and innovative pedagogy.

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Annex

Annex 1- questionnaire - research tools

Hello dear teacher!

My name is Elanit Aizik, I am a doctoral student in the Department of Education at the University of Poznan under the guidance of Dr hab. Malgorzata Kabat.

As part of my studies, I conduct research aimed at promoting teachers' awareness and professional knowledge of teachers in a changing environment.

Here is a questionnaire that examines the awareness and professional knowledge of teachers.

The questionnaire is anonymous and its results are used only for my research purposes.

Your participation in the research will contribute significantly to obtaining a broad picture of the subject of the interrogee and therefore your honest answers are very important to me.

Thank you for your time and cooperation, Elanit Ayzik

Name _____ (optional)

School _____ City / Location _____ (optional)

Part 1 - circle the most correct answers

1. Gender: a. man b. woman

2. Years of seniority in teaching:

a. 1-3 year's b. 4-8 year's c. 8-15 year's d. Over 15 year's

3. Education:

a. Bachelor's degree of Science and Technology

b. Bachelor's degree in another field, please specify: _____

c. Master's degree of Science and Technology

D. Master's degree in another field, please specify: _____

Additional degree (if you have) _____

4. Affiliation:

a. state school b. Religious State School c. Other, details: _____

5. Sector:

a. Jewish b. Arab c. Bedouin d. Druze e. Cherkassy f. other: _____

6. Professional certification (you can mark more than one correct answer):

A. Teacher with a certificate of training in teaching science and technology. Where did you train? _____

B. Teacher without a certificate of training in teaching science and technology. What is your training? _____

7. What classes do you teach? (you can mark more than one correct answer):

a. Grades 1 – 2 b. Grades 3-6 C. Grades 7-8 d. Grades 9-12 Other: _____

8. I have been trained (for example, in teacher training) to the effects of globalization

(diverse cultures, awareness of diversity, equality): a. Yes b. No details:

Part 2 - Mark any statement to what extent you agree

	statement	Not at all	Very little	Mode- rately	quite a lot	Very much
1	I combine one or more of the following learning types: problem-based learning, inquiry learning, reflective learning, lifelong learning	1	2	3	4	5
2	I challenge my students to learn independently and think critically	1	2	3	4	5
3	I combine thinking skills in explicit and direct teaching in different content areas in order to create new knowledge	1	2	3	4	5
4	I teach social skills, leadership and multicultural dialogue between people and different groups	1	2	3	4	5
5	I teach a flexible study structure of time and place beyond the limits of the lesson and class	1	2	3	4	5
6	Most of my time in my classes is devoted to active learning processes, experiences and self-tasks	1	2	3	4	5
7	Integrating technology into the classroom makes it difficult for me to plan the lesson, the location of the lesson, and the adaptation of the teaching method	1	2	3	4	5
8	I come from a background where the teacher gives the best information to the students	1	2	3	4	5

	and they are not expected to respond to it					
9	In my experience, the teacher is the main active factor in the teaching-learning processes	1	2	3	4	5
10	I prefer students to memorize knowledge	1	2	3	4	5
11	I teach according to a curriculum and work plan prepared in advance	1	2	3	4	5
12	Discipline and regular classroom sitting are important for students to learn	1	2	3	4	5
13	In my experience, I prefer that the students work only in the classroom and within the lesson	1	2	3	4	5
14	My role as a teacher is primarily to mediate, shape and assist the student in his or her learning process	1	2	3	4	5
15	I teach my students to reflect (Thinking about thinking) in the learning process	1	2	3	4	5
16	I prepare students for learning tasks according to different intelligences	1	2	3	4	5
17	In my opinion, the correct approach to teaching a student new knowledge is to base him on previous knowledge that includes his feelings, experiences and beliefs	1	2	3	4	5
18	I am an active member of the professional knowledge community in my professional way of life, open my work to feedback from colleagues and to the training processes and use current and global professional knowledge resources	1	2	3	4	5
19	In my classes, I do not deal much with social, cultural, economic, and technological content	1	2	3	4	5
20	I have theories about the learning process that affect my teaching	1	2	3	4	5
21	My teaching approach is shaped by past experiences from the teachers who taught me	1	2	3	4	5
22	I think research is important in my teaching	1	2	3	4	5
23	In teaching work I use pedagogical principles and teaching techniques that are not limited to a particular content area	1	2	3	4	5
24	My role as a teacher is to develop academic skills and self-efficacy among my students	1	2	3	4	5
25	I study in depth the teaching materials before I teach my students	1	2	3	4	5

26	The school framework limits time, space and culture and, for the most part, does not allow me to initiate social interaction, cooperation, critical dialogue, teamwork and observing the activities of teachers	1	2	3	4	5
27	As a teacher, I have a responsibility for the learning environment that includes social gaps, norms, language, and I can change it to enable the realization of my students' abilities	1	2	3	4	5
28	I am not interested in the backgrounds and identities of my students	1	2	3	4	5
29	It is important for me to build a relationship with my students	1	2	3	4	5
30	My feelings and thoughts influence my learning as a teacher	1	2	3	4	5
31	I learn in a variety of ways through direct experiences, experiences, reading and reflection	1	2	3	4	5
32	I adapt the learning to the personal needs of my students on the assumption that there is a difference between students	1	2	3	4	5
33	In the teaching work, I acquire various skills while working in a team	1	2	3	4	5
34	I learn by watching the activities of other teachers	1	2	3	4	5
35	I am in favor of working in pairs, groups and learning teams, and often combine multicultural discourse on the assumption that learning is social	1	2	3	4	5
36	The breaks at school give me an opportunity to get to know the school culture	1	2	3	4	5
37	Open climate and professional autonomy for teachers, encourage teachers to develop awareness of students' needs and initiate school changes	1	2	3	4	5
38	A heterogeneous multicultural framework encourages the social and cultural awareness of teachers and students	1	2	3	4	5
39	The contemporary teacher is not the only "knowledge authority" and therefore is unable to perform the duties of a teacher properly	1	2	3	4	5
40	I do not do everything I want and all that I believe in with my students because I'm a bit afraid of what the result will be	1	2	3	4	5

41, From your experience so far, in what contrasts and dilemmas do you experience your professional knowledge and how do they affect/ not affect your teaching work? Write your own sentence

42. From your experience so far, what difficulties do you have in transferring material to students? What difficulties do students have in understanding the material? Difficulty in acquiring new knowledge, difficulty in using new knowledge
Write your own sentence

43. From your experience so far, how experienced individuals have been able to influence your work and knowledge?
Write your own sentence

44. From your experience so far, what school successes (if any) have you accumulated during your teaching? How did they affect you and your work? Write your own sentence

45. Write 3 positive characteristics and 3 negative characteristics of your school:

Positive characteristics: _____

Negative characteristics: _____

46. Rate the following items (1-5) in terms of their significance and importance in the way you think about Teaching and Learning:

1. not at all 2. Very little 3. Mode-rately 4. Quite a lot 5. Very much

1. My personal history as a student in formal educational frameworks

- 1 2 3 4 5
2. My personal history as a learner in the family, in society, in work, in sports
1 2 3 4 5
3. My cultural values
1 2 3 4 5
4. The behaviors of my lecturers and teachers
1 2 3 4 5
5. Ideas from colleagues
1 2 3 4 5
6. The behaviors of other people who have had an educational role in my life
1 2 3 4 5
7. My political and social beliefs
1 2 3 4 5
8. Other? _____
1 2 3 4 5

How do you think this has affected the way you think about teaching and learning?

In order to deepen my research, I would like to interview teachers. Are you interested in being interviewed? Yes / No.

Name: _____

Contact number: _____

Thank you for your cooperation!

Annex 2 -Tasks

1. Design in an original way a presentation of messages to a subject of teaching, by choosing any form and methods
2. Use all materials in your area and methods of action to implement a particular topic in the teaching

3. design in an interesting way, implementation of a chosen subject in the field of study, use non-standard didactic methods and materials
4. Plan to implement a subject of study from the teaching materials of the Ministry, by using any content and information
5. Edit a message from a particular topic within the curriculum using a familiar teaching method, so that you can imagine what else you can learn
6. write an outline of the implementation of the methodological unit containing the teaching content of your subject

Annex 3- Test

Hello dear teacher!

Read all statements carefully. If you agree with them and you think that the statement characterizes you well - select the answer YES.

If you think that the statement does not apply to you - mark the answer NO.

If you have no opinion and you do not know what to answer - mark the question

Gender: K /M School _____ Teacher - _____

	Statement	Yes	Do not know	No
1	I would like to (I would like to learn more about the subject			
2	I consciously use the acquired knowledge			
3	I am happy to design tasks in my teaching subject			
4	I meet various difficulties in the workplace			
5	I have knowledge of the subject of the taught subject			
6	I am interested in various technical innovations.			
7	I like to solve puzzles from the subject I teach			
8	I often solve additional tasks and analyze them with my students			
9	I am interested in various methods of transferring knowledge from my subject of education			
10	In the future, I would like to use innovative methods in my subject			

11	I currently transmit knowledge using traditional teaching and learning methods			
12	I am aware of insufficient knowledge of the subject being taught			
13	I notice the lack of awareness of the acquisition of knowledge and further improvement			
14	I like to do various aids that help me acquire knowledge from the subject I teach			
15	I can explain to my colleagues and students' solutions to tasks that they cannot deal with themselves.			
16	I notice the lack of cooperation with other teachers in the field of knowledge exchange			
17	I am interested in the different backgrounds and identities of my students			
18	I am aware of the school's limitations in time and space, and therefore I initiate collaborations with other teachers from the staff in our spare time			
19	I consciously perform circular dialogues and introductory games with students often to get to know them well			
20	I want to change the learning environment in the future and to influence the learning culture of my students so that my students' abilities can be exhausted			
21	I want to build a relationship with my students so that I can assist them in the learning process			
22	I want to integrate into the teaching work, contact with the community and interact with the school environment in order to improve and renew teaching methods and learning			

Annex 4 - Raw research results - Descriptive analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	45	50.0	50.0	50.0
	female	45	50.0	50.0	100.0
	Total	90	100.0	100.0	

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3	17	18.9	18.9	18.9

4-8	27	30.0	30.0	48.9
8-15	24	26.7	26.7	75.6
15+	22	24.4	24.4	100.0
Total	90	100.0	100.0	

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Bachelor's degree of Science and Technology	80	88.9	88.9	88.9
Master's degree of Science and Technology	3	3.3	3.3	92.2
Master's degree in another field	7	7.8	7.8	100.0
Total	90	100.0	100.0	

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid state school	76	84.4	84.4	84.4
Religious State School	14	15.6	15.6	100.0
Total	90	100.0	100.0	

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-2	2	2.2	2.2	2.2
3-6	44	48.9	48.9	51.1
1-6	37	41.1	41.1	92.2
3-8	7	7.8	7.8	100.0
Total	90	100.0	100.0	

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	14	15.6	15.6	15.6
no	76	84.4	84.4	100.0
Total	90	100.0	100.0	

Annex 5- Questionnaire analysis

	N	Minimum	Maximum	Mean	Std. Deviation
A1	90	2	4	2.59	.598
A2	90	3	4	3.06	.230
A3	90	2	4	2.57	.562
A4	90	3	5	3.20	.429
A5	90	1	5	2.12	.684
A6	90	1.00	5.00	2.3333	.65343
A7	90	1.00	4.00	3.6222	.66329
A8	90	1.00	4.00	3.5000	.76804
A9	90	1.00	5.00	4.5444	.82327
A10	90	2.00	5.00	4.6333	.56984
A11	90	3.00	5.00	4.6667	.51929
A12	90	1.00	5.00	4.4222	.76405
A13	90	2.00	5.00	4.3667	.72592
Valid N (listwise)	90				

	N	Minimum	Maximum	Mean	Std. Deviation
A11	90	3.00	5.00	4.6667	.51929
A10	90	2.00	5.00	4.6333	.56984
A9	90	1.00	5.00	4.5444	.82327
A12	90	1.00	5.00	4.4222	.76405
A13	90	2.00	5.00	4.3667	.72592
A7	90	1.00	4.00	3.6222	.66329
A8	90	1.00	4.00	3.5000	.76804
A4	90	3.00	5.00	3.2000	.42927
A2	90	3.00	4.00	3.0556	.23034
A1	90	2.00	4.00	2.5889	.59764
A3	90	2.00	4.00	2.5667	.56190
A6	90	1.00	5.00	2.3333	.65343
A5	90	1.00	5.00	2.1222	.68413
Valid N (listwise)	90				

	N	Minimum	Maximum	Mean	Std. Deviation
A14	90	1.00	5.00	2.1778	.71230
A15	90	1.00	4.00	2.7333	.59587
A16	90	1.00	3.00	1.9889	.71098
A17	90	1.00	4.00	2.2778	.65390

A18	90	2.00	4.00	2.7778	.53586
A19	90	3.00	5.00	4.2889	.52455
Valid N (listwise)	90				

A42

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid none	3	3.3	3.3	3.3
cognitive	12	13.3	13.3	16.7
emotional	36	40.0	40.0	56.7
social-environmental	39	43.3	43.3	100.0
Total	90	100.0	100.0	

A43

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid none	34	37.8	37.8	37.8
Internally	44	48.9	48.9	86.7
externally	12	13.3	13.3	100.0
Total	90	100.0	100.0	

A44

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid none	5	5.6	5.6	5.6
cognitive	56	62.2	62.2	67.8
emotional	15	16.7	16.7	84.4
social-environmental	14	15.6	15.6	100.0
Total	90	100.0	100.0	

	N	Minimum	Maximum	Mean	Std. Deviation
A30	90	1.00	5.00	4.4333	.70392
A31	90	3.00	5.00	3.45	.5438

	0			56	3
A32	9	2.00	5.00	2.98	.7266
Valid N (listwise)	90			89	1

	N	Minimum	Maximum	Mean	Std. Deviation
A33	90	2.00	5.00	2.5333	.58444
A34	90	1.00	4.00	2.0333	.72592
A35	90	3.00	5.00	4.2222	.46875
A36	90	4.00	5.00	4.5889	.49479
A37	90	4.00	5.00	4.4111	.49479
A38	90	3.00	5.00	3.8333	.43057
A39	90	1.00	3.00	1.9111	.66442
A40	90	1.00	5.00	4.1444	.91873
Valid N (listwise)	90				

A41

N	Valid	90
	Missing	0

A41

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid none	20	22.2	22.2	22.2
cognitive	25	27.8	27.8	50.0
emotional	10	11.1	11.1	61.1
social-environmental	35	38.9	38.9	100.0
Total	90	100.0	100.0	

	N	Minimum	Maximum	Mean	Std. Deviation
A20	90	1.00	5.00	4.6556	.67310
A21	90	1.00	5.00	4.1444	.64584
A22	90	2.00	4.00	2.8889	.54966
A23	90	2.00	5.00	2.8444	.53864
A24	90	2.00	5.00	2.9111	.62969
A25	90	2.00	5.00	3.4333	.86180
A26	90	1.00	5.00	4.5222	.70675
A27	90	2.00	5.00	3.5667	.75028
A28	90	1.00	4.00	2.2556	.71203

A29	90	1.00	5.00	4.2222	.76110
Valid N (listwise)	90				

	N	Minimum	Maximum	Mean	Std. Deviation
A46_3	90	3.00	5.00	4.7222	.47470
A46_7	90	1.00	5.00	4.6111	.80301
A46_6	90	1.00	5.00	4.3111	.81619
A46_1	90	1.00	5.00	4.1222	.93410
A46_4	90	2.00	5.00	4.1222	.80487
A46_2	90	2.00	5.00	4.0444	.81985
A46_5	90	1.00	5.00	2.4444	.94941
Valid N (listwise)	90				

A46_8

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid personal	57	63.3	63.3	63.3
environmental	22	24.4	24.4	87.8
no influence	11	12.2	12.2	100.0
Total	90	100.0	100.0	

Gender = female

Statistics^a

	seniority	Education	Affiliation	classes	training_globalization
N Valid	45	45	45	45	45
Missing	0	0	0	0	0

a. Gender = female

seniority^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-3	9	20.0	20.0	20.0
4-8	14	31.1	31.1	51.1
8-15	11	24.4	24.4	75.6
15+	11	24.4	24.4	100.0
Total	45	100.0	100.0	

a. Gender = female

Education^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's degree of Science and Technology	41	91.1	91.1	91.1
	Master's degree of Science and Technology	1	2.2	2.2	93.3
	Master's degree in another field	3	6.7	6.7	100.0
	Total	45	100.0	100.0	

a. Gender = female

Affiliation^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	state school	39	86.7	86.7	86.7
	Religious State School	6	13.3	13.3	100.0
	Total	45	100.0	100.0	

a. Gender = female

classes^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2	1	2.2	2.2	2.2
	3-6	22	48.9	48.9	51.1
	1-6	16	35.6	35.6	86.7
	3-8	6	13.3	13.3	100.0
	Total	45	100.0	100.0	

a. Gender = female

training_globalization^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	37	82.2	82.2	82.2
	yes	8	17.8	17.8	100.0
	Total	45	100.0	100.0	

a. Gender = female

Gender = male

Statistics^a

		seniority	Education	Affiliation	classes	training_ globalization
N	Valid	45	45	45	45	45
	Missing	0	0	0	0	0

a. Gender = male

seniority^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3	8	17.8	17.8	17.8
	4-8	13	28.9	28.9	46.7
	8-15	13	28.9	28.9	75.6
	15+	11	24.4	24.4	100.0
	Total	45	100.0	100.0	

a. Gender = male

Education^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's degree of Science and Technology	39	86.7	86.7	86.7
	Master's degree of Science and Technology	2	4.4	4.4	91.1
	Master's degree in another field	4	8.9	8.9	100.0
	Total	45	100.0	100.0	

a. Gender = male

Affiliation^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	state school	37	82.2	82.2	82.2
	Religious State School	8	17.8	17.8	100.0
	Total	45	100.0	100.0	

a. Gender = male

classes^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-2	1	2.2	2.2	2.2
3-6	22	48.9	48.9	51.1
1-6	21	46.7	46.7	97.8
3-8	1	2.2	2.2	100.0
Total	45	100.0	100.0	

a. Gender = male

training_globalization^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	39	86.7	86.7	86.7
yes	6	13.3	13.3	100.0
Total	45	100.0	100.0	

a. Gender = male

Annex 6 - Experiment analysis

tasks_level

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid low	11	24.4	24.4	24.4
medium	30	66.7	66.7	91.1
high	4	8.9	8.9	100.0
Total	45	100.0	100.0	

tasks_level

N	Valid	23
	Missing	0

a. Gender = male

tasks_level^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid low	6	26.1	26.1	26.1
medium	15	65.2	65.2	91.3
high	2	8.7	8.7	100.0

Total	23	100.0	100.0
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a. Gender = male

tasks_level

N	Valid	22
	Missing	0

a. Gender = female

tasks_level^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid low	5	22.7	22.7	22.7
medium	15	68.2	68.2	90.9
high	2	9.1	9.1	100.0
Total	22	100.0	100.0	

a. Gender = female

tasks_level

N	Valid	9
	Missing	0

a. GENDER = male, seniority = young

tasks_level^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid medium	9	100.0	100.0	100.0

a. GENDER = male, seniority = young

tasks_level

N	Valid	14
	Missing	0

a. GENDER = male, seniority = older

tasks_level^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid low	6	42.9	42.9	42.9
medium	6	42.9	42.9	85.7

high	2	14.3	14.3	100.0
Total	14	100.0	100.0	

a. GENDER = male, seniority = older

tasks_level

N	Valid	12
	Missing	0

a. GENDER = female, seniority = young

tasks_level^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low	1	8.3	8.3	8.3
	medium	10	83.3	83.3	91.7
	high	1	8.3	8.3	100.0
	Total	12	100.0	100.0	

a. GENDER = female, seniority = young

tasks_level

N	Valid	10
	Missing	0

a. GENDER = female, seniority = older

tasks_level^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low	4	40.0	40.0	40.0
	medium	5	50.0	50.0	90.0
	high	1	10.0	10.0	100.0
	Total	10	100.0	100.0	

a. GENDER = female, seniority = older

Between-Subjects Factors

		Value Label	N
GENDER	1	male	23
	2	female	22
seniority	1	young	21

2	older	24
---	-------	----

Descriptive Statistics

Dependent Variable:tasks_score

GENDER	seniority	Mean	Std. Deviation	N
male	young	25.22	2.224	9
	older	22.00	8.067	14
	Total	23.26	6.545	23
female	young	27.58	5.648	12
	older	19.90	6.540	10
	Total	24.09	7.097	22
Total	young	26.57	4.578	21
	older	21.13	7.392	24
	Total	23.67	6.755	45

Tests of Between-Subjects Effects

Dependent Variable:tasks_score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	386.628 ^a	3	128.876	3.259	.031
Intercept	24514.358	1	24514.358	619.900	.000
GENDER	.186	1	.186	.005	.946
seniority	325.061	1	325.061	8.220	.007
GENDER * seniority	54.395	1	54.395	1.375	.248
Error	1621.372	41	39.546		
Total	27213.000	45			
Corrected Total	2008.000	44			

a. R Squared = .193 (Adjusted R Squared = .133)

Group Statistics

	GENDE R	N	Mea n	Std. Deviation	Std. Error Mean
tasks_scor e	male	23	23.26	6.545	1.365
	female	22	24.09	7.097	1.513

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means
--	--	------------------------------

		F	Sig.	t	df	Sig. (2-tailed)	Mean Differenc e	Std. Error Differenc e	95% Confidence Interval of the Difference	
									Lower	Upper
tasks_score	Equal variances assumed	.699	.408	-.408	43	.685	-.830	2.034	-4.932	3.272
	Equal variances not assumed			-.407	42.326	.686	-.830	2.038	-4.941	3.281

seniority		N	Mean	Std. Deviation	Std. Error Mean
tasks_score	young	9	25.22	2.224	.741
	older	14	22.00	8.067	2.156

a. GENDER = male

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differenc e	Std. Error Differenc e	95% Confidence Interval of the Difference	
									Lower	Upper
tasks_score	Equal variances assumed	7.932	.010	1.161	21	.259	3.222	2.774	-2.548	8.992
	Equal variances not assumed			1.413	15.894	.177	3.222	2.280	-1.613	8.058

a. GENDER = male

Group Statistics^a

seniority		N	Mean	Std. Deviation	Std. Error Mean

tasks_score	young	12	27.58	5.648	1.630
	older	10	19.90	6.540	2.068

a. GENDER = female

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
tasks_score	Equal variances assumed	.105	.749	2.958	20	.008	7.683	2.597	2.266	13.101
	Equal variances not assumed			2.918	17.982	.009	7.683	2.633	2.150	13.216

Group Statistics

	GENDE R	N	Mean	Std. Deviation	Std. Error Mean
Open_task1	male	23	2.87	1.100	.229
	female	22	2.77	1.193	.254
OPEN_CLOSED	male	23	3.9891	1.21655	.25367
	female	22	4.1477	1.29711	.27654
closed6	male	23	4.43	1.121	.234
	female	22	4.73	1.420	.303

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper

Open_task1	Equal variances assumed	.056	.815	.283	43	.778	.097	.342	-.592	.786
	Equal variances not assumed			.283	42.327	.779	.097	.342	-.594	.788
OPEN_CLOSED	Equal variances assumed	.849	.362	-.423	43	.674	-.15860	.37472	-.91429	.59710
	Equal variances not assumed			-.423	42.491	.675	-.15860	.37527	-.91565	.59846
closed6	Equal variances assumed	.282	.598	-.769	43	.446	-.292	.381	-1.060	.475
	Equal variances not assumed			-.765	39.946	.449	-.292	.383	-1.066	.481

	seniority	N	Mean	Std. Deviation	Std. Error Mean
Open_task1	young	9	3.00	.707	.236
	older	14	2.79	1.311	.350
OPEN_CLOSED	young	9	4.3889	.54645	.18215
	older	14	3.7321	1.46256	.39089
closed6	young	9	4.67	.707	.236
	older	14	4.29	1.326	.354

a. GENDER = male

Independent Samples Test^a

	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference

									Lower	Upper
Open_task1	Equal variances assumed	2.606	.121	.448	21	.659	.214	.479	-.781	1.210
	Equal variances not assumed			.507	20.578	.617	.214	.422	-.665	1.094
OPEN_CLOSED	Equal variances assumed	5.809	.025	1.282	21	.214	.65675	.51233	-.40870	1.72220
	Equal variances not assumed			1.523	17.888	.145	.65675	.43124	-.24967	1.56316
closed6	Equal variances assumed	3.760	.066	.788	21	.439	.381	.483	-.624	1.386
	Equal variances not assumed			.895	20.520	.381	.381	.426	-.505	1.267

a. GENDER = male

Group Statistics^a

seniority		N	Mean	Std. Deviation	Std. Error Mean
Open_task1	young	12	2.92	1.165	.336
	older	10	2.60	1.265	.400
OPEN_CLOSED	young	12	4.8750	1.07397	.31003
	older	10	3.2750	.98213	.31058
closed6	young	12	5.17	.718	.207
	older	10	4.20	1.874	.593

a. GENDER = female

Independent Samples Test^a

	Levene's Test for Equality of Variances	t-test for Equality of Means
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		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Open_task1	Equal variances assumed	.080	.781	.611	20	.548	.317	.518	-.765	1.398
	Equal variances not assumed			.606	18.608	.552	.317	.522	-.778	1.412
OPEN_CLOSED	Equal variances assumed	1.290	.270	3.615	20	.002	1.60000	.44258	.67679	2.52321
	Equal variances not assumed			3.646	19.793	.002	1.60000	.43883	.68399	2.51601
closed6	Equal variances assumed	3.333	.083	1.654	20	.114	.967	.584	-.253	2.186
	Equal variances not assumed			1.540	11.198	.151	.967	.628	-.412	2.345

	training	N	Mean	Std. Deviation	Std. Error Mean
tasks_score	yes	6	36.17	1.835	.749
	no	39	21.74	4.892	.783
Open_task1	yes	6	4.50	.837	.342
	no	39	2.56	.940	.151
OPEN_CLOSED	yes	6	6.2500	.31623	.12910
	no	39	3.7308	.95522	.15296
closed6	yes	6	6.67	1.211	.494
	no	39	4.26	.938	.150

	Levene's Test for Equality of Variances	t-test for Equality of Means
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		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
tasks_score	Equal variances assumed	5.483	.024	7.086	43	.000	14.423	2.035	10.318	18.528
	Equal variances not assumed			13.307	18.937	.000	14.423	1.084	12.154	16.692
Open_task1	Equal variances assumed	.043	.836	4.753	43	.000	1.936	.407	1.115	2.757
	Equal variances not assumed			5.186	7.096	.001	1.936	.373	1.056	2.816
OPEN_CLOSED	Equal variances assumed	6.115	.017	6.352	43	.000	2.51923	.39662	1.71938	3.31908
	Equal variances not assumed			12.586	22.942	.000	2.51923	.20016	2.10512	2.93334
closed6	Equal variances assumed	.154	.697	5.645	43	.000	2.410	.427	1.549	3.271
	Equal variances not assumed			4.664	5.959	.004	2.410	.517	1.144	3.677

Group Statistics^a

	training	N	Mean	Std. Deviation	Std. Error Mean
tasks_score	yes	3	36.33	1.155	.667
	no	20	21.30	4.293	.960
Open_task1	yes	3	4.67	.577	.333
	no	20	2.60	.883	.197
OPEN_CLOSED	yes	3	6.3333	.38188	.22048

	no	20	3.6375	.83695	.18715
closed6	yes	3	6.33	.577	.333
	no	20	4.15	.875	.196

a. GENDER = male

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
tasks_score	Equal variances assumed	4.410	.048	5.923	21	.000	15.033	2.538	9.755	20.311
	Equal variances not assumed			12.863	13.007	.000	15.033	1.169	12.508	17.558
Open_task1	Equal variances assumed	.540	.470	3.889	21	.001	2.067	.531	.962	3.172
	Equal variances not assumed			5.335	3.601	.008	2.067	.387	.943	3.191
OPEN_CLOSED	Equal variances assumed	2.348	.140	5.410	21	.000	2.69583	.49827	1.65962	3.73204
	Equal variances not assumed			9.322	5.614	.000	2.69583	.28920	1.97621	3.41546
closed6	Equal variances assumed	.693	.415	4.143	21	.000	2.183	.527	1.087	3.279
	Equal variances not assumed			5.649	3.571	.007	2.183	.387	1.057	3.309

a. GENDER = male

Group Statistics^a

	training	N	Mean	Std. Deviation	Std. Error Mean
tasks_score	yes	3	36.00	2.646	1.528
	no	19	22.21	5.534	1.269
Open_task1	yes	3	4.33	1.155	.667
	no	19	2.53	1.020	.234
OPEN_CLOSED	yes	3	6.1667	.28868	.16667
	no	19	3.8289	1.08029	.24784
closed6	yes	3	7.00	1.732	1.000
	no	19	4.37	1.012	.232

a. GENDER = female

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
tasks_score	Equal variances assumed	2.146	.158	4.175	20	.000	13.789	3.303	6.901	20.678
	Equal variances not assumed			6.943	5.429	.001	13.789	1.986	8.803	18.776
Open_task1	Equal variances assumed	.108	.746	2.812	20	.011	1.807	.643	.466	3.148
	Equal variances not assumed			2.557	2.519	.099	1.807	.707	-.705	4.319
OPEN_CLOSED	Equal variances assumed	4.513	.046	3.657	20	.002	2.33772	.63922	1.00432	3.67112
	Equal variances not assumed			7.827	13.364	.000	2.33772	.29866	1.69427	2.98116

closed6	Equal variances assumed	2.400	.137	3.833	20	.001	2.632	.687	1.200	4.064
	Equal variances not assumed			2.563	2.221	.112	2.632	1.027	-1.391	6.654

a. GENDER = female

Annex 7- Test analysis

Group Statistics^a

	gender	N	Mean	Std. Deviation	Std. Error Mean
professional knowledge	male	23	8.0000	1.12815	.23524
	female	22	7.8182	1.36753	.29156
self knowledge	male	23	11.2174	1.38027	.28781
	female	22	11.5000	1.10195	.23494
activities	male	23	7.5217	.84582	.17637
	female	22	8.0455	.95005	.20255
applying knowledge	male	23	7.7826	1.31275	.27373
	female	22	8.1818	1.00647	.21458
barriers	male	23	8.7391	.91539	.19087
	female	22	8.7273	1.27920	.27273
knowledge others	male	23	6.9130	2.29452	.47844
	female	22	5.8182	2.93803	.62639
environment	male	23	6.2174	1.12640	.23487
	female	22	7.2727	1.45346	.30988

a. group = experiment

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

professional knowledge	Equal variances assumed	.256	.616	.487	43	.628	.18182	.37301	-.57042	.93406
	Equal variances not assumed			.485	40.754	.630	.18182	.37462	-.57489	.93852
self knowledge	Equal variances assumed	.982	.327	-.757	43	.453	-.28261	.37340	-1.03563	.47041
	Equal variances not assumed			-.761	41.693	.451	-.28261	.37152	-1.03253	.46731
activities	Equal variances assumed	.202	.656	-1.955	43	.057	-.52372	.26787	-1.06392	.01649
	Equal variances not assumed			-1.950	41.915	.058	-.52372	.26857	-1.06575	.01832
applying knowledge	Equal variances assumed	2.539	.118	-1.141	43	.260	-.39921	.34987	-1.10479	.30637
	Equal variances not assumed			-1.148	41.091	.258	-.39921	.34781	-1.10158	.30316
barriers	Equal variances assumed	.023	.881	.036	43	.972	.01186	.33045	-.65456	.67828
	Equal variances not assumed			.036	37.925	.972	.01186	.33289	-.66208	.68579
knowledge others	Equal variances assumed	10.809	.002	1.397	43	.170	1.09486	.78388	-.48597	2.67570
	Equal variances not assumed			1.389	39.739	.173	1.09486	.78821	-.49849	2.68821

environment	Equal variances assumed	1.712	.198	-2.730	43	.009	-1.05534	.38663	-1.83505	-.27562
	Equal variances not assumed			-2.714	39.588	.010	-1.05534	.38883	-1.84145	-.26922

	gender	N	Mean	Std. Deviation	Std. Error Mean
professional knowledge	male	22	6.5455	1.71067	.36472
	female	23	6.4783	1.87979	.39196
self knowledge	male	22	9.7273	2.76340	.58916
	female	23	10.0000	2.25630	.47047
activities	male	22	6.8182	2.08478	.44448
	female	23	6.6522	1.52580	.31815
applying knowledge	male	22	7.0909	1.99783	.42594
	female	23	6.9130	1.85651	.38711
barriers	male	22	7.3636	1.29267	.27560
	female	23	7.7391	1.13688	.23706
knowledge others	male	22	6.0909	2.52434	.53819
	female	23	5.9565	2.54912	.53153
environment	male	22	5.0000	1.51186	.32233
	female	23	5.6957	1.84477	.38466

a. group = control

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
professional knowledge	Equal variances assumed	.450	.506	.125	43	.901	.06719	.53655	-1.01485	1.14924
	Equal variances not assumed			.126	42.898	.901	.06719	.53540	-1.01262	1.14700

self knowledge	Equal variances assumed	1.870	.179	-.363	43	.718	-.27273	.75054	-1.78633	1.24087
	Equal variances not assumed			-.362	40.573	.719	-.27273	.75396	-1.79586	1.25041
activities	Equal variances assumed	2.275	.139	.306	43	.761	.16601	.54286	-.92878	1.26079
	Equal variances not assumed			.304	38.407	.763	.16601	.54661	-.94016	1.27217
applying knowledge	Equal variances assumed	.624	.434	.310	43	.758	.17787	.57461	-.98095	1.33668
	Equal variances not assumed			.309	42.404	.759	.17787	.57557	-.98335	1.33908
barriers	Equal variances assumed	.840	.365	-1.036	43	.306	-.37549	.36247	-1.10648	.35550
	Equal variances not assumed			-1.033	41.753	.308	-.37549	.36352	-1.10924	.35826
knowledge others	Equal variances assumed	.049	.825	.178	43	.860	.13439	.75659	-1.39142	1.66019
	Equal variances not assumed			.178	42.945	.860	.13439	.75642	-1.39114	1.65991
environment	Equal variances assumed	1.681	.202	-1.380	43	.175	-.69565	.50410	1.71227	.32097
	Equal variances not assumed			-1.386	42.032	.173	-.69565	.50186	-1.70842	.31711

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
professional knowledge	Equal variances assumed	1.809	.186	-.510	43	.613	-.19048	.37365	-.94401	.56306
	Equal variances not assumed			-.518	42.476	.607	-.19048	.36748	-.93183	.55088
self knowledge	Equal variances assumed	33.766	.000	3.333	43	.002	1.11905	.33574	.44197	1.79613
	Equal variances not assumed			3.559	24.077	.002	1.11905	.31446	.47014	1.76795
activities	Equal variances assumed	1.517	.225	.857	43	.396	.23810	.27771	-.32196	.79815
	Equal variances not assumed			.869	42.869	.390	.23810	.27414	-.31480	.79099
applying knowledge	Equal variances assumed	.004	.952	.878	43	.385	.30952	.35269	-.40173	1.02078
	Equal variances not assumed			.876	41.921	.386	.30952	.35326	-.40342	1.02246
barriers	Equal variances assumed	11.659	.001	1.552	43	.128	.50000	.32221	-.14980	1.14980
	Equal variances not assumed			1.661	23.000	.110	.50000	.30096	-.12259	1.12259

knowledge others	Equal variances assumed	2.829	.100	.341	43	.734	.27381	.80196	-1.34350	1.89112
	Equal variances not assumed			.338	39.795	.737	.27381	.81015	-1.36382	1.91144
environment	Equal variances assumed	.671	.417	2.402	43	.021	.94643	.39402	.15182	1.74104
	Equal variances not assumed			2.380	40.091	.022	.94643	.39764	.14283	1.75003

a. group = experiment

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
professional knowledge	Equal variances assumed	1.062	.309	2.134	43	.039	1.08893	.51030	.05981	2.11806
	Equal variances not assumed			2.133	42.798	.039	1.08893	.51057	.05912	2.11874
self knowledge	Equal variances assumed	2.963	.092	3.001	43	.004	2.05138	.68350	.67298	3.42979
	Equal variances not assumed			2.986	40.191	.005	2.05138	.68693	.66326	3.43951
activities	Equal variances assumed	.491	.487	2.884	43	.006	1.43478	.49746	.43156	2.43800

	Equal variances not assumed			2.891	42.832	.006	1.43478	.49624	.43391	2.43566
applying knowledge	Equal variances assumed	.101	.752	.310	43	.758	.17787	.57461	-.98095	1.33668
	Equal variances not assumed			.310	42.985	.758	.17787	.57426	-.98025	1.33598
barriers	Equal variances assumed	.626	.433	3.673	43	.001	1.17589	.32017	.53021	1.82157
	Equal variances not assumed			3.650	39.128	.001	1.17589	.32214	.52436	1.82742
knowledge others	Equal variances assumed	1.956	.169	1.763	43	.085	1.28854	.73091	-.18549	2.76256
	Equal variances not assumed			1.761	42.582	.085	1.28854	.73181	-.18771	2.76479
environment	Equal variances assumed	15.479	.000	3.005	43	.004	1.40711	.46832	.46265	2.35158
	Equal variances not assumed			3.048	31.919	.005	1.40711	.46171	.46655	2.34767

a. group = control

Annex 8- T –Tests

Independent Samples Test^a

	Levene's Test for Equality of Variances	t-test for Equality of Means
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		F	Sig.	t	df	Sig. (2- tailed)	Mean Differenc e	Std. Error Differenc e	95% Confidence Interval of the Difference	
									Lower	Upper
theories	Equal variance s assume d	.150	.70 0	.609	43	.545	.15415	.25293	-.35594	.66424
	Equal variance s not assume d			.611	42.83 6	.544	.15415	.25232	-.35475	.66305
past experience s	Equal variance s assume d	.803	.37 5	-.932	43	.356	-.22530	.24163	-.71258	.26199
	Equal variance s not assume d			-.930	42.05 0	.358	-.22530	.24221	-.71407	.26348
research	Equal variance s assume d	3.69 9	.06 1	.271	43	.787	.04743	.17481	-.30510	.39996
	Equal variance s not assume d			.269	37.26 4	.789	.04743	.17620	-.30950	.40436
pedagogic al principles	Equal variance s assume d	.311	.58 0	1.452	43	.154	.27075	.18651	-.10539	.64689
	Equal variance s not assume d			1.461	40.70 0	.152	.27075	.18532	-.10360	.64510
academic skills	Equal variance s assume d	.642	.42 7	.000	43	1.000	.00000	.24064	-.48531	.48531
	Equal variance s not assume d			.000	41.01 1	1.000	.00000	.23920	-.48308	.48308
teaching materials	Equal variance s assume d	1.43 3	.23 8	.243	43	.809	.06917	.28422	-.50401	.64235

	Equal variances not assumed			.244	42.071	.808	.06917	.28297	-.50186	.64200
school framework limits	Equal variances assumed	.733	.397	.798	43	.429	.20553	.25767	-.31411	.72518
	Equal variances not assumed			.790	35.641	.435	.20553	.26010	-.32216	.73323
learning environment	Equal variances assumed	4.927	.032	-.481	43	.633	-.11660	.24246	-.60557	.37237
	Equal variances not assumed			-.485	39.004	.630	-.11660	.24047	-.60300	.36980
background students	Equal variances assumed	.089	.766	-1.075	43	.288	-.23913	.22249	-.68783	.20956
	Equal variances not assumed			-1.075	42.962	.288	-.23913	.22241	-.68768	.20941
relationship students	Equal variances assumed	.301	.586	1.009	43	.319	.25889	.25655	-.25849	.77628
	Equal variances not assumed			1.001	37.560	.323	.25889	.25853	-.26467	.78246

a. Gender = female

Independent Samples Test^a

	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference

									Lower	Upper
theories	Equal variances assumed	.219	.642	-.234	43	.816	-.02976	.12700	-.28588	.22636
	Equal variances not assumed			-.234	41.545	.816	-.02976	.12744	-.28703	.22751
past experiences	Equal variances assumed	.219	.642	.234	43	.816	.02976	.12700	-.22636	.28588
	Equal variances not assumed			.234	41.545	.816	.02976	.12744	-.22751	.28703
research	Equal variances assumed	.324	.572	.151	43	.880	.02381	.15722	-.29326	.34088
	Equal variances not assumed			.150	39.297	.882	.02381	.15909	-.29789	.34551
pedagogical principles	Equal variances assumed	.219	.642	-.234	43	.816	-.02976	.12700	-.28588	.22636
	Equal variances not assumed			-.234	41.545	.816	-.02976	.12744	-.28703	.22751
academic skills	Equal variances assumed	15.246	.000	-1.795	43	.080	-.20238	.11272	-.42970	.02494
	Equal variances not assumed			-1.740	32.174	.091	-.20238	.11630	-.43922	.03446
teaching materials	Equal variances assumed	4.936	.032	-1.912	43	.063	-.43452	.22721	-.89274	.02370
	Equal variances not assumed			-1.875	36.510	.069	-.43452	.23177	-.90435	.03530

d										
school framework limits	Equal variances assumed	5.160	.028	-1.262	43	.214	-.17857	.14150	-.46394	.10679
	Equal variances not assumed			-1.250	40.056	.218	-.17857	.14282	-.46721	.11006
learning environment	Equal variances assumed	4.583	.038	1.887	43	.066	.38095	.20183	-.02609	.78799
	Equal variances not assumed			1.847	35.860	.073	.38095	.20624	-.03739	.79929
background students	Equal variances assumed	.026	.873	.089	43	.929	.01786	.19965	-.38477	.42049
	Equal variances not assumed			.090	42.580	.929	.01786	.19914	-.38386	.41957
relationship students	Equal variances assumed	2.077	.157	-.727	43	.471	-.14286	.19637	-.53888	.25316
	Equal variances not assumed			-.735	42.987	.466	-.14286	.19433	-.53477	.24905

a. Gender = male

Independent Samples Test^a

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

feelings/thoughts	Equal variances assumed	1.448	.235	.124	43	.902	.03162	.25416	-.48094	.54418
	Equal variances not assumed			.126	36.944	.901	.03162	.25159	-.47818	.54143
variety of learning ways	Equal variances assumed	.012	.912	.379	43	.707	.06719	.17727	-.29030	.42469
	Equal variances not assumed			.379	42.893	.707	.06719	.17729	-.29036	.42475
personal needs of students	Equal variances assumed	2.305	.136	-.581	43	.564	-.13636	.23451	-.60930	.33657
	Equal variances not assumed			-.586	39.659	.561	-.13636	.23274	-.60688	.33415

a. Gender = female

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
feelings/thoughts	Equal variances assumed	2.867	.098	1.120	43	.269	.16667	.14882	-.13346	.46680
	Equal variances not assumed			1.124	42.720	.267	.16667	.14826	-.13238	.46572
variety of learning ways	Equal variances assumed	.024	.876	.079	43	.938	.01190	.15097	-.29255	.31636

	Equal variances not assumed			.079	42.131	.938	.01190	.15104	-.29287	.31668
personal needs of students	Equal variances assumed	.814	.372	-.953	43	.346	-.19048	.19987	-.59354	.21259
	Equal variances not assumed			-.951	41.835	.347	-.19048	.20028	-.59470	.21375

a. Gender = male

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
team work	Equal variances assumed	.071	.791	2.537	43	.015	.46047	.18149	.09446	.82649
	Equal variances not assumed			2.555	40.120	.015	.46047	.18021	.09628	.82467
watching others	Equal variances assumed	4.844	.033	1.125	43	.267	.26680	.23718	-.21152	.74512
	Equal variances not assumed			1.134	39.337	.264	.26680	.23531	-.20903	.74263
pairs work	Equal variances assumed	.013	.909	-.043	43	.966	-.00593	.13794	-.28411	.27225
	Equal variances not assumed			-.043	42.809	.966	-.00593	.13800	-.28428	.27242

a. Gender = female

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
team work	Equal variances assumed	1.202	.279	.674	43	.504	.10119	.15019	-.20169	.40407
	Equal variances not assumed			.672	41.780	.505	.10119	.15054	-.20266	.40504
watching others	Equal variances assumed	1.150	.290	1.194	43	.239	.23214	.19438	-.15986	.62415
	Equal variances not assumed			1.187	40.995	.242	.23214	.19551	-.16270	.62699
pairs work	Equal variances assumed	.341	.562	.295	43	.770	.04167	.14137	-.24343	.32677
	Equal variances not assumed			.294	41.706	.770	.04167	.14175	-.24446	.32779

a. Gender = male

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
cultural values	Equal variances assumed	.018	.893	.068	43	.946	.00791	.11663	-.22730	.24311

	Equal variances not assumed			.068	42.825	.946	.00791	.11668	-.22743	.24324
political/social beliefs	Equal variances assumed	.046	.831	-.079	43	.937	-.02372	.29889	-.62648	.57905
	Equal variances not assumed			-.079	42.959	.937	-.02372	.29837	-.62545	.57802
behaviors of others	Equal variances assumed	.364	.549	.448	43	.657	.12055	.26936	-.42266	.66377
	Equal variances not assumed			.445	39.185	.659	.12055	.27101	-.42753	.66864
history educational frameworks	Equal variances assumed	3.765	.059	1.236	43	.223	.35771	.28932	-.22576	.94117
	Equal variances not assumed			1.225	36.062	.228	.35771	.29194	-.23434	.94976
behaviors of lecturers	Equal variances assumed	.189	.666	.323	43	.749	.08498	.26347	-.44635	.61632
	Equal variances not assumed			.322	42.733	.749	.08498	.26367	-.44686	.61682
history family/society	Equal variances assumed	.480	.492	1.699	43	.096	.43478	.25586	-.08120	.95077
	Equal variances not assumed			1.698	42.729	.097	.43478	.25606	-.08170	.95127
ideas colleagues	Equal variances assumed	3.869	.056	.197	43	.845	.06522	.33156	-.60343	.73386

Equal variances not assumed			.198	38.180	.844	.06522	.32857	-.59984	.73028
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a. Gender = female

Independent Samples Test^a

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
cultural values	Equal variances assumed	12.147	.001	2.303	43	.026	.35119	.15247	.04370	.65868
	Equal variances not assumed			2.361	40.769	.023	.35119	.14875	.05073	.65165
political/social beliefs	Equal variances assumed	1.052	.311	-.248	43	.806	-.04167	.16820	-.38087	.29754
	Equal variances not assumed			-.242	35.373	.810	-.04167	.17210	-.39091	.30758
behaviors of others	Equal variances assumed	2.337	.134	-.2100	43	.042	-.44643	.21260	-.87518	-.01768
	Equal variances not assumed			-.2053	35.457	.048	-.44643	.21748	-.88773	-.00513
history educational frameworks	Equal variances assumed	.005	.944	.318	43	.752	.08333	.26243	-.44590	.61257
	Equal variances not assumed			.319	42.650	.752	.08333	.26160	-.44436	.61103

d										
behaviors of lecturers	Equal variances assumed	4.630	.037	1.536	43	.132	.33333	.21695	-.10418	.77085
	Equal variances not assumed			1.517	39.006	.137	.33333	.21971	-.11108	.77775
history family/society	Equal variances assumed	.000	.989	2.529	43	.015	.51786	.20478	.10487	.93084
	Equal variances not assumed			2.509	40.434	.016	.51786	.20641	.10082	.93490
Ideas colleagues	Equal variances assumed	4.704	.036	.978	43	.333	.22619	.23118	-.24002	.69240
	Equal variances not assumed			1.004	40.439	.321	.22619	.22527	-.22895	.68133

a. Gender = male