

BT Incl. Vol. 21:1998 r.

425 821 II

1993-m-21

GLOTTODIDACTICA

VOL • XXI



UNIwersytet im. Adama Mickiewicza w Poznaniu

GLOTTODIDACTICA

AN INTERNATIONAL JOURNAL
OF APPLIED LINGUISTICS

VOLUME XXI

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POZNAŃ 1993

Okladkę projektowała

MARIA DOLNA



Redaktorzy: Elżbieta Kostecka, Elżbieta Mistowska, Andrzej Pietrzak
Redaktor techniczny: Józef Mądry

ISBN 83-232-0463-2
ISSN 0072-4769

WYDAWNICTWO NAUKOWE UNIwersYTETU IM ADAMA MICKIEWICZA W POZNANIU

Nakład 470+80 egz. Ark. wyd. 17,00. Ark. druk. 12,25. Papier offset. kl. III. 80 g. 70×100.
Podpisano do druku i druk ukończono w czerwcu 1993 r.

WYKONANO W ZAKŁADZIE GRAFICZNYM UAM, POZNAŃ UL. WIENIAWSKIEGO 1

Bibl. UAM
93 EO 1475

CONTENTS

I. ARTICLES

Hanna KOMOROWSKA, Qualitative vs. quantitative research on FL teaching and learning process	5
Margarita KOSILOVA, Right hemisphere versus left hemisphere: what is wrong with the teaching of reading scientific literature?	19
Stanisław PUPPEL, The acquisition of phonology in a dynamical model of human information processing: a preliminary account	29
Krystyna DROŹDZIAŁ-SZELEST, Strategies of second language learners: some research findings and their pedagogical implications	43
Robert DĘBSKI, Computer-assisted language learning (CALL) and a method of foreign language teaching	53
Elżbieta LELENTAL, La communication non verbale et l'enseignement des langues	63
Elżbieta ZAWADZKA, Zu einigen Schwächen in der Lexikbehandlung im Fremdsprachenunterricht	73

II. NOTES AND DISCUSSIONS

Gert HENRICI, Deutsch als Fremdsprache, Quo vadis? Konstituierungsprobleme eines jungen akademischen Fachs	85
Lutz GÖTZE, Entwicklungen in der deutschen Sprache	101
Wanda KRZEMIŃSKA, Quoi de neuf dans le domaine du Français langue étrangère en France?	105
Jan KORZENIOWSKI, Some remarks on the significance of socio-cultural background for cross-cultural communication and foreign language education	113

III. CASE STUDIES

Teresa SIEK-PISKOZUB, The English and the American in the eyes of the Poles	119
Nawoja MIKOŁAJCZAK, The influence of transformations on remembering foreign language sentences as seen against the background of the theory of semantic memory and the notion of language deep structure	129

IV. REVIEW ARTICLES

Krystyna DROŹDZIAŁ-SZELEST, Manfred Prokop's <i>Learning strategies for second language users</i>	145
Teresa SIEK-PISKOZUB, Recent contributions to the communicative foreign language teaching methodology in Poland	155

V. REPORTS

- Der Fremdsprachenunterricht der Zukunft – die Zukunft des Fremdsprachen-
unterrichts. Internationales Kolloquium zur 'Perspektive 2000'. (Frank G.
KÖNIGS) 163

VI. BOOK REVIEWS AND ANNOTATIONS

- G.J. Westhoff, *Didaktik des Leseverstehens. Strategien des voraussagenden Lesens mit
Übungsprogrammen* (Maria SAWICKA) 165
- G. Desselman, *Handlungsorientierte Aufgabengestaltung im Deutschunterricht für
Ausländer* (Kazimiera MYCZKO) 166
- G.L. Karcher, *Das Lesen in der Erst- und Fremdsprache, Dimensionen und Aspekte
einer Fremdsprachenlegetik* (Kazimiera MYCZKO) 168
- E. Zawadzka, *Percepcja audialna w kształtowaniu nauczycieli języków obcych
(Aural perception in the training of foreign language teachers)*
(Ludmiła SOBOLEW) 170
- J. Kramer, *Cultural and intercultural studies* (Jan KORZENIEWSKI) 173
- F.G. Königs (Hsg.), *Übersetzungswissenschaft und Fremdsprachenunterricht. Neue
Beiträge zu einem alten Thema* (Janusz ZYDRON) 174
- H. Heuer, F. Klippel, *Englischmethododik. Problemfelder, Unterrichtswirklichkeit und
Handlungsempfehlungen* (Janusz ZYDRON) 177
- K.R. Bausch, H. Christ, W. Hüllen, H.J. Krumm (Hrsg.), *Arbeitspapiere zur
Erforschung des Fremdsprachenunterrichts* (Barbara SKOWRONEK) 179
- T. Bungarten (Hrsg.), *Sprache und Information in Wirtschaft und Gesellschaft
(Barbara SKOWRONEK)* 181
- S.F. Sager, *Reflexionen zu einer linguistischen Ethologie* (Barbara SKOWRONEK) .. 184
- C. Gnutzmann (Hrsg.), *Fachbezogener Fremdsprachenunterricht* (Barbara
SKOWRONEK) 185
- L. Hoffmann, *Vom Fachwort zum Fachtext* (Barbara SKOWRONEK) 186
- H.P. Kelz (Hrsg.), *Fachsprache 2. Studienvorbereitung und Didaktik der Fach-
sprachen* (Barbara SKOWRONEK) 187
- W. Pfeiffer (Hrsg.), *Deutsch als Fachsprache in der Lehrerbildung und -fortbildung
(Barbara SKOWRONEK)* 188
- A. Geiger, *Britischer Kontextualismus und Fremdsprachenunterricht* (Barbara
SKOWRONEK) 190
- H. Ramge, L.E. Schmitt, C. Wiedemann (Hrsg.), *Authentische Texte in der Vermittlung
des Deutschen als Fremdsprache* (Barbara SKOWRONEK) 191
- I. Gogolin, *Erziehungsziel Zweisprachigkeit* (Barbara SKOWRONEK) 192
- J. Iluk, *Übungen zur Rektion deutscher Verben* (Czesław KAROLAK) 193

VII. PUBLICATIONS RECEIVED 195

COMPUTER-ASSISTED LANGUAGE LEARNING (CALL) AND A METHOD OF FOREIGN LANGUAGE TEACHING

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Received 1989

ABSTRACT. This paper has been written in the process of developing a theoretical background for the employment of microcomputers in teaching Polish as a foreign language in the Polonia Research Institute of the Jagiellonian University. The author points out the influence various methods and techniques of language instruction have had on CALL, and he provides some evidence that CALL is not a single instructional method. His purpose in discussing some of the unique features of CALL is to show that CALL may be an effective tool in language instruction which in addition provides teachers with some new perspectives. The lack of any significant research in CALL in Poland forces the author to illustrate his points with foreign experiences in the field, mostly American. Finally, conclusions are drawn which clarify the role of the microcomputer in the instructional process and constitute valuable implications for the future research in the field of teaching Polish with the aid of the microcomputer.

1. INTRODUCTION

There are many methods of foreign language teaching; methods which have adopted various learning theories, which threw a new light upon the role of the teacher in the instructional process or the way syllabi should be organized. These methods have often grown out of a critique of some other foreign language teaching method. Notwithstanding all these seemingly autonomous methods, it seems that the language teacher has often practised eclecticism, and, for example, intertwined various communicative activities with mechanical drill, treated as a pre-communicative activity.

Eclecticism can also be seen in course materials; often even in activities practising one single linguistic aspect. Lennon (1988) provides a fascinating

example illustrating the point made above. Presenting the passive voice, White (1988) uses authentic texts, stresses the semantic function of the passive voice, uses metalanguage to describe passive constructions and makes the students perform active-passive transformations.

The brief mention of the presence of eclecticism in language teaching is made in this paper on the pretext of its having a wider application in discussion of CALL which, certainly, has more than one identity.

2. CALL AND ITS RELATIONSHIP WITH FOREIGN LANGUAGE TEACHING METHODS

Important issues surrounding the employment of computers in language teaching have not simply surfaced with the microcomputer technology boom which is identified with the last dozen or so years. Long before that, i.e. in the 60s, teachers used mainframe computers as language teaching aids and considered the problems the new tool presented. The ESL PLATO (Programmed Logic For Automated Teaching Operations) system in the Intensive English Institute at the University of Illinois, which was constructed by people having educational applications in mind, must be mentioned here. The fact of the matter is, however, that only the microcomputer, owing to its reasonable price and mobility resulting from miniaturisation, made the educational application of the computer popular.

The way the computer is used in foreign language teaching has undergone many changes. It is largely software that determines the educational application of the computer, and it is software that has changed, following the main trends in linguistic theory, the methodology of foreign language teaching and the advance in research on the specific instructional abilities of the computer.

A great number of the early stage educational computer programs, as well as some of the ones being developed in our times, display some characteristics of programmed learning, which was a very popular means of instruction in the 50s and 60s. Programmed learning is based on behaviouristic principles, that is the same principles on which the audiolingual method of foreign language teaching was founded. This type of educational software exploits one of the major features of programmed learning – i.e. a dialog, in the form of questions and answers, related to small fragments of the material being taught – and it includes activities based on the pattern drill technique, exploiting mechanical repetition, change and transformation of linguistic units, ignoring any broader linguistic context. The PLATO courseware seems to be a perfect example of the software. It uses pattern drill to teach reading skills, as well as comprehension, writing and grammar (Chapelle, Jamieson 1986).

Chapelle and Jamieson (1986) write that grammar in the PLATO system is presented in two series of lessons. The first series practises basic vocabulary and elementary structures. The second one introduces grammar at a more advanced level. The lessons, in the second series deal with a small part of grammar presentation only, focusing rather on the practice stage. A single lesson comprises about four activities related to grammar points taught, and uses such traditional techniques as substitution, transformation, question/answer and fill-in-the-blank.

Reading lessons in PLATO introduce and teach realworld vocabulary examine the degree of grammar acquisition and familiarise the student with some aspects of American culture. The lessons portray the main character of the passages in various places and situations, e.g. at a post-office, restaurant, at home, etc. While going through the reading passages, the student can ask the computer about the meaning of unknown words. After the student has read all the paragraphs, he answers multiple-choice comprehension questions about each paragraph. Then, for example, he must complete a restatement or paraphrase exercise.

The lessons aiming at developing listening and writing skills are divided into two types of lessons, i.e. spelling lessons and dictation. During the spelling lessons the student's aural comprehension is also checked, and they have to recognize and write the words they hear on the keyboard. First a list of words is shown to them on the monitor, and then the list disappears and they hear single words out of the list used in sentences. Their task is to write the words on the keyboard, e.g.:

- "John reads the newspaper in the morning."
- Write: "morning"

A subprogram recognizing and analysing some of the students' spelling mistakes – developed on the basis of a contrastive analysis of English and other languages – is built into the main program.

Each dictation includes two integral parts, i.e. (1) a list of ten sentences and (2) a short paragraph of five sentences. By touching the screen, the students activate an audio device randomly choosing one of the sentences from the list. The student hears this sentence in his headphones and his task is to type it. Some of the mistakes the students make are not only announced on the screen but also partially processed by the computer. The computer indicates, for example, if it is a punctuation, capitalization or inversion mistake. Having typed the sentence, students are allowed either to continue and go on to other sentences, or to record their vocal representation of the sentence and compare it to the model recording, as in a language laboratory.

"The PLATO lessons," write Chapelle and Jamieson (1986:32), "are more machine-controlled than learner-controlled. Although students choose from

a menu the other in which they will complete the week's lessons, the lessons themselves provide the learners with very few options."

Another example of the same type of software is the programs developed in the Slavic Institute in Stanford in the 60s, where computers were employed in teaching the Russian language. This is what Ahmad et al. (1985:29) write about the course:

"The exercises were similar to those on a conventional introductory Russian course, but the material was presented in a programmed format. The students were asked to type answers to questions stated in Russian, to inflect words, and to perform various types of transformation exercises".

The type of language teaching software that has been discussed so far is not the only type of software used in CALL. Instructional activities based on the pattern drill format lost their popularity in traditional¹ foreign language instruction, and likewise in CALL, along with the widely spread critique of the audiolingual method. There begun to emerge educational programs conceptualized on principles akin to the contemporary trends in foreign language teaching methodology. Underwood (1984), for example, presented his idea of communicative CALL. These are some of Underwood's basic assumptions:

1) Communicative CALL will aim at acquisition, and not at mechanical learning through the pattern drill type of activities.

2) Grammar will never be explicit; it will always be built into the activities realized in the course of the lesson.

3) Communicative activities in CALL will simulate original, creative language production, not limiting students to pure manipulation of pre-programmed language units.

4) The computer will not try to evaluate everything that students do, simply because it cannot do it; it will only guide the student's steps.

5) Communicative CALL will give up rewarding with funny announcements, melodies, visual effects, and the like. When students use language to solve a problem, a success at that will be a sufficient reward.

6) Communicative CALL will try to release a searching attitude in students, directed at language acquisition; it will function as a microworld in which the student may play and manipulate language units while learning its regularities.

7) Communicative CALL will never be used where pen and paper suffice.

8) Communicative CALL will be fun. It will be attractive to students. Communicative CALL will be optional type of foreign language instruction.

(Underwood 1984)

¹The term "traditional instruction" refers in this paper to all the ways of foreign language teaching other than CALL.

Underwood's assumptions comply with the major theses of the communicative method of foreign language teaching, which diverge from comprehending communication in a foreign language as an effect of learning its formal regularities as a result of practice (often mechanical), and emphasize authentic language practice and learning as a process of the realization of communication needs. The possibility of employing a computer adventure game to serve as instructional reading activity (see Dębski in press; Grabe, Dosmann 1988; Higgins and Johns 1983) may be an example of "communicativeness" in CALL software.

In its original form, a recreational adventure game is an exclusively textual game. The player's goal, for example, may be to discover a secret passage leading to a hidden treasure, to find an exit in a maze, to explore an underground empire, amass treasure and fight various unsavoury characters, and he can achieve it only by proper comprehension of short reading passages appearing on the screen and – guided by hints in the passages – writing commands for the computer, e.g. "go north", "take key", "push door", etc. The commands influence the player's situation and his way towards the goal of the game. The passages include instructions, hidden information and puzzles the player must recognize in order to get command of the game and succeed. The adventure game format wonderfully fulfills the postulate of communicative reading where making the process of teaching reading more natural by properly motivating the student is of prime importance. For most young people (and not only the young) the accomplishment of the goal of an adventure game may turn out to be sufficient stimulus to read texts on the screen. Still another communicative assumption claims the necessity of the existence of an information gap which can be filled only by reading and comprehending a given reading passage. Finally, an adventure game (or an activity based on the adventure game format) may be an activity partially integrating the student's text processing skill and writing skill, since contemporary adventure games can parse the player's input to some degree, and do not limit it to "telegraphese style".

Research done in the field of artificial intelligence (A I) seems to be a promising source of ideas that may have a substantial influence on foreign language teaching software. As O'Shea and Self (1983:5) have pointed out, "programs based on ideas from artificial intelligence are considerably less dehumanising than those that are not".

Computers are universally recognized as calculating machines. It is true that they are such, since even the symbols of the written code must be changed into a sequence of number before they are comprehensible for a computer. We must remember, however, that computers, after having analyzed and transformed them into numbers, are perfectly happy with all kinds of symbols, including language units.

One of the first significant achievements in the field of A.I. is a conversational program called ELIZA, developed by Weizenbaum, in which the computer, as one of the options, plays the role of a psychoanalyst (Weizenbaum 1970). ELIZA, just like many other conversational programs, only simulates intelligent human behaviour, but it is so good at doing that that many people have been deluded into thinking that they are having a conversation based on mutual comprehension. ELIZA has even been considered a solution to the still unsolved problem of natural language analysis. Although ELIZA is based on valuable insight into the strategies people use in conversation, its functioning is chiefly based on tricks. Equipped with an apparatus searching for some key words it "understands", ELIZA can use these words to create an illusion of conversation. Psychoanalysts' work partially consists of using fragments of the patients utterances in order to elicit some further information, and just keep the dialogue going. This technique is often used by ELIZA. Whenever ELIZA cannot parse human input – it switches over to some other topic of conversation. The following conversation between a young woman and ELIZA illustrates the technique of encouraging the patient to keep talking (Weizenbaum 1976:3):

women: Men are all alike.

ELIZA: In what way?

woman: They're always bugging us about something or other.

ELIZA: Can you think of a specific example?

woman: Well, my boyfriend made me come here.

ELIZA: Your boyfriend made you come here?

woman: He says I'm depressed much of the time.

ELIZA I am sorry to hear you are depressed.

Another example of a conversational computer program, but one developed with CALL in mind, is a program called TERRI (Coleman 1985). The computer display shows a few objects contained in a room. The learner can get the computer problems, for example "Get all the black objects off the floor" or "Put the black box on the white one", etc. If TERRI manages to analyze the command, it checks the input to see (1) whether the objects mentioned in the command refer to objects in the room, (2) whether it is clear which of the objects is referred to, and (3) whether the action can be carried out by the computer. Whenever TERRI comes across difficulties with decoding the input, it comments, e.g. "I can't move it. Something is in the way". If TERRI "understands" the command and resolves that it can be carried out, it does so on the animated display.

Conversational computer programs are able to create a specific microworld for the learner; a microworld in which conversation in a foreign language is obligatory as well as pleasant. This Microworld may exist independent of

regular school instruction, i.e. at home. In this microworld foreign language learning is carried out not by picking up chunks of formalized grammar or through mechanical drills, but through acquisition as a result of "conversation" and play with language, i.e. in a natural way, close to how a native or second language is acquired by children. These features – especially if we think of the perspective of rapid progress in the field of natural language analysis and creation of more apt conversational systems – make CALL reveal some features of the direct (natural) method of language teaching.

It is evident, therefore, that CALL software manifests the features of several foreign language teaching methods. It also employs some techniques used in traditional instruction. Nonetheless, there are some techniques employed in CALL which are highly specific for the computer, i.e. which utilize the computer's special possibilities, such as the ability to generate random number, storage and manipulation of a vast body of data and the ability to model or simulate real world processes.

3. THE THEORETICAL PREMISES FOR THE EMPLOYMENT OF COMPUTERS IN FOREIGN LANGUAGE TEACHING

It was noticed a long time ago that computers enable teachers to organize individual working posts for students who, from then on, could work at their own idiosyncratic pace, either catching up with the best or zooming ahead, regardless of those behind them. Computers, therefore, enable partial fulfilment of the dream of individualized instruction. It is teaching skill that needs an individualized approach most of all because of students' different reading rates. The computer may turn out to be helpful at solving this problem. Using the computer, it is possible to show the student one sentence at a time (or one line of text at a time) on the screen, and if the student wants to see the next line, he has to press a key. The computer calculates the time between two successive processes and calculates the speed of text presentation best for a given student (Gillingham 1988).

With the help of diagnostic software, on the other hand, the teacher can appreciate the current language proficiency level of a student and allot him individual tasks. TIPS (Teaching Information and Processing System), which contains diagnostic quizzes and makes decisions as to students' individualized working pace, may serve as an example of such a system. It is claimed to raise examination results by 15% (Grabe 1988).

The computer enables the teacher to gather records of student achievements which are important not only for diagnostic reasons, but which constitute valuable data in research work aiming at optimization of the learning/teaching process.

The behaviourist overestimation of external stimuli in learning gave way to research on some internal cognitive processes, which take place in learners, and which condition the effectiveness of learning. Research done in this field is carried on to isolate and describe the main factors affecting the learning process. It is evident nowadays that active and purposeful manipulation of data – i.e. using it in various situations and contexts – may positively influence learning. Still another positive factor is the possibility of student control over the learning process and the level of information acquisition. The student's attitude towards the learning process and his involvement and joint responsibility for this process – that is the affective variables – are also vital (Grabe 1988).

The first two of the factors mentioned above have a bearing on computer language teaching software. Research has also been done to establish students' attitude towards CALL. The multitude of variable resulting from individual affective and cognitive differences among students, multiplied by a great number of types of educational software make it difficult to establish how learners react to CALL. Therefore, it is more reasonable to speak of student preferences as to certain types of CALL materials than to speak of their overall attitude towards CALL.

The application of computers in teaching the text processing skill seems particularly promising. The easiness with which the computer manipulates data makes it a perfect dictionary, allowing the student quick access to items. Work developing reading skill is based on organizing various activities enhancing certain recognized reading strategies, practiced by good readers. It has been settled, for example, that the ability of prediction of what is going to come next in the text (on the base of what has already been read) is an important factor in reading. There are computer programs which exploit techniques developing this reading strategy, e.g. Higgins's SHUFFLER, in which the student has to continue a text, constantly choosing from several possibilities.

Grabe (1988), on the other hand, points out the concurrence that exists between some cognitive processes making learning more effective and the cognitive processes used while playing with a computer adventure game. As a consequence he believes that the adventure game may be an environment which develops the reading skill through developing certain cognitive strategies, corresponding to some metacognitive processes. Research done in the field of metacognition describes how students activate and control the learning process (including reading) how they control their achievements, how they face problems and react to failure at solving them. Some work demonstrates, for example, that good readers can appreciate the hierarchy of importance of particular passages for understanding the whole text (Brown, Siley 1977) and they can localize mistakes purposefully planted in the text (which is an indication of good self-monitoring), better than poor readers (Grabe, Mann

1984). These skills are useful playing with an adventure game, and Grabe (1988) hypothesizes that they (as well as some others) can be developed by the adventure game.

A word processor seems to be a valuable tool in enhancing the writing skill. Papert (1980:30) pointed out this feature of a word processor when he wrote:

"... I have seen a child from total rejection of writing to an intense involvement (accompanied by a rapid improvement in quality) within a few weeks of beginning to write with a computer."

Piper (1987:124) notices that "error takes on an entirely new status with a word processor". A mistake made on the monitor screen is nothing permanent (it can be detected and corrected any time), and the text screen is not a final version but only a draft, one of a few possible versions, which can also be improved. Perhaps it is these features of working with a word processor that make students using it more likely to accept the teacher's advice; they also like consulting their friends. This fact bears still one more advantage when working with a multi-lingual group: the conversation arising between the students or between the teacher and the students must be in the foreign language. The importance of the word processor as a conversation stimulator is also indicated by Higgins and Johns (1983).

4. CONCLUSIONS

Computer-Assisted Language Learning (CALL) is not a compact, autonomous foreign language teaching method. It manifests the features of several methods and it uses many techniques used in traditional language teaching. Language teaching software has undergone changes, following the pattern of changes in linguistic theory and foreign language teaching methodology. Contemporary CALL software realizes the assumptions of a few language teaching methods. Although the computer is a means of realization for the existing language teaching theories, it undoubtedly provides the teacher with a few unique possibilities. There is some evidence, for example, that the computer affords possibilities for individualized instruction and that it is a tool enhancing some cognitive processes in the learner. Research in the educational application of computers should, therefore, aim at a fuller definition and utilization of these unique features of CALL. The computer cannot be only a teaching machine, duplicating old methods, techniques and failures. It must introduce new values into the foreign language teaching process and bear new

hopes in language teachers, corresponding to these LOGO² has born in maths teachers. It is also believed that research in artificial intelligence is a great chance for making CALL software more "intelligent".

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²A computer programming language called LOGO, used in teaching geometry, is referred to. LOGO and the teaching philosophy attached to it (based on Piagetian principles) are considered an alternative method of mathematical instruction (see Papert 1980).