INFORMATION TECHNOLOGY AS EDUCATIONAL RESOURCE FOR FOREIGN LANGUAGE TEACHING

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Abstract

The present paper deals with application of the Internet network for English teaching as foreign language.

The aim of the paper includes two pedagogical aspects. The first is theoretical and traces the role of computers in the approaches to foreign language teaching such as structural, cognitive and sociocognitive. The second – discusses the types of reading by means of information technology and the application of the internet recourses and tools for educational needs: an electronic book, a group's address and hypertext reading.

Key words: *computer, CALL, approach, structural, cognitive, networking, computer-mediated communication.*

Introduction

The twenty-first century has introduced the necessity for changes in higher education. Nowadays the development of society has widened the meaning and quality of education due to Information and Communication Technologies (ICT). In education we are affected by the influence of modern technologies such as computers, mobile phones, the Internet and by accompanying attitude that technology can offer easy solutions. As technology can solve the problem of entertainment or communication, it must surely be able to solve the problem of education equally easily. New technology is seen, in short, as some kind of panacea, which makes education quicker, and easier.

However, the problem is how to attend to all aspects of the change process including interpersonal and social areas, how to ensure that the human elements in the change process are being dealt with as well as the technical and to discover the ways of close cooperation between an instructor from one side and the knowledge consumer i.e. a student from another one. It is an important problem because in the recent years the most dramatic changes have come about as a result of developments in 'Network-Based Language Teaching (NBLT), a form of CALL (Computer Assisted Language Learning). Kern and Warschauer, for instance, describe network-based language teaching as '*language teaching that involves the use of computers connected to one another in either local or global networks* (Warschauer (ed.) & Kern, 2002, p.1). In this connection a question may arise:

> May this new form of CALL raise the students' motivation for studying languages, in particular, foreign languages? This question, first of all, should be addressed to the so-called 'non-language students, i.e. the students studying the natural sciences and technical subjects, not the Arts.

The purpose of this report was, first, to analyse the theoretical approaches and, second, to discuss the application of networks as a useful resource of texts and exercises for educational needs.

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Hence, I intend, first of all, to begin with a brief outline of the theoretical assumption on which the article was based on and, then, to present new approaches to language teaching that I have used at Riga Technical University by means of Information and Communication Technologies (ICT).

Computer as a tool for language learning

One of the most significant areas of innovation in language education – CALL – has come of age. Nowadays, audiotape-based language laboratories have been replaced by language media centres, where the language learners can use multimedia CD-ROMs and laser disks, access foreign language documents on the World Wide Web, and communicate with their teachers, fellow classmates, and native speakers by electronic mail. If language teaching has become more exciting, it has also become considerably more complex. The simple question to which everyone wants an answer – Does the use of network-based language teaching lead to better results of language learning – turns out not to be simple. The computer like any other technological tool used in teaching, e.g. pens and paper, overhead projectors, does not bring about improvements in learning.

Structural approaches to CALL

The earliest CALL programs consisting of grammar and vocabulary tutorials, drill and practice programs, and language testing instruments, strictly followed the computer-as-tutor model. Developed originally for mainframe computers in the 1960s and 1970s these programs were designed to provide immediate positive or negative feedback to learners on the formal accuracy of their responses.This historical stage Warschauer and Healey (1998, 57) call the '*behaviourist*' stage, during which the use of computers in language teaching was characterised by drills, repetition and closed question/ answer activities – what Healy (1999, 234) calls 'drill-and-practice software'.

Drill programs perpetuated existing instructional practices. Moreover, until recently, these programs tended to be technically unsophisticated, generally allowing only one acceptable response per item. Development of more sophisticated personal computers propelled CALL into its second generation.

Cognitive approaches to CALL

The next generation of CALL programs tended to shift agency to the learner. In this model, learners construct new knowledge through exploration of what Seymour Papert (to see Warschauer, M. (ed.) (2002, 9) for Papert (1980)) has described as microworlds, which provide opportunities for problem solving and hypothesis testing allowing learners to utilize their existing knowledge to develop new understandings. Papert and his colleagues at the MIT Media Laboratory saw computers as things to be controlled by, rather than controlling learners.

This cognitive, constructivist generation of CALL was a significant advance over earlier tutorial and drill programs. At the same time by the early 1990s, many educators felt that CALL was still failing to live up to its full potential (Kenning & Kenning, 1990; Pusack & Otto, 1990; Ruschoff, 1993). Critics pointed out that the computer was being used in disconnected fashion and thus was "making a great contribution to marginal rather than to central elements "of the language teaching process (Kenning & Kenning, 1990, p.90). Moreover, as Crook (1994) points out , computer activities based on either a tutor i.e. computer-as-tutor or a pupil i.e. computer-as-pupil approaches potentially distance the instructor from what students are doing individually and can, thus, compromise the collaborative nature of classroom learning.

Despite the apparent advantages of multimedia, today's computer programs are not yet intelligent enough to be truly interactive. As the matter of fact the learner acts in a principally consultative mode within a closed system, and does not engage in genuine negotiation of meaning. Computer programs that are capable of evaluating the appropriateness of a user's writing or speech, diagnosing learner difficulties, and intelligently choosing among a range of communicative response options are not expected to exist for quite some time.

Sociocognitive approaches shift the accent of teaching from learner' interaction *with* computers to interaction with other humans via the computer. The basis for this new approach to CALL lies in both theoretical and technological developments. Theoretically, there has been the broader emphasis on meaningful interaction in authentic discourse communities. Technologically, there has been the development of computer networking, which allows the computer to be used as a vehicle for interactive human communication.

Many uses of networked computers fit into Crook's (1994) model 'computer-as-tool'. It emphasizes the role that computers can play as the tools that shape the ways we interact with the world i.e. accessing and organizing information through databases, spreadsheets and word processors. Word processors, for instance, facilitate the invention, revision, and editing processes of writing, allowing quick, easy (and reversible) reshaping of text.

Computer networking allows a powerful extension of the computer-as-tool in that it now facilitates access to other people as well as information and data. Computer networking in the language classroom stems from two important technological developments:

(1) computer-mediated communication (CMC);

(2) globally linked hypertext.

CMC has existed in primitive forms since the 1960s, but its use has become widespread only since the late 1980s (Murray D., 1995). CMC allows language learners with network access to communicate with other learners or speakers of the target language in either asynchronous (not simultaneous) or synchronous (simultaneous in real time) modes. Though tools such as e-mail, which allows participants to create messages whenever they choose, or Internet Relay Chat, which allows individuals to have a simultaneous conversation by typing at their keyboards, CMC permits not only one-to-one communication but also on-to-many communication. It therefore allows an instructor or a student to share a message with a small group, the whole class, a partner class, or an international discussion list involving many people. Participants can share not only short messages but also lengthy documents, thus facilitating collaborative reading and writing.

Globally linked hypertext and hypermedia, as represented as World Wide Web, represents a new medium for organizing, linking and accessing information. Among its important features are: (1) informational representation through multilinear strands linked electronically, (2) integration of graphics, audio, and audiovisual information together with texts, (3) rapid global access, and (4) ease and low cost of international publications The World Wide Web offers an abundance of international resources whose utility of language learning is just beginning to be tapped. Using the World Wide Web students can search through millions of files around the world within minutes to locate and access authentic materials e.g. newspaper and magazine articles, radio broadcasts, short videos, movie reviews, book experts) that corresponds to their own personal interests. They can also use the Web to publish their texts or multimedia materials to share with partner classes or with the general public. These features can facilitate an approach to using technology in which authentic and creative communication is integrated into all aspects of the course. Furthermore, the World Wide Web has tremendous potential for creating and providing access to multi-user, interactive multimedia environments.

These new technologies do not only *serve* the new teaching/learning paradigms, as Mark Warschauer writes (Warschauer, 2003, p.12), they also creates possibilities for new kinds of communication. This is particularly important in English language teaching, because so much international on-line communication is conducted in that language, but it is likely important in the teaching of other languages as well, as cyberspace continues to become more multilingual. This multiplicity of roles is summarized in Figure 1 that shows the above-mentioned approaches and the principal role of computers in English language teaching.

In a *sociocognitive* approach, learning is viewed not just in terms of changes individuals' cognitive structures but also in terms of social structure of learners' discourse and activity (Crook, 1994, p.78).

Thus, cognitive constructive approach practiced in the work with university students, is realized as strategy to achieve high – quality level of academic language and to ensure efficiency in learning / teaching process

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Studying foreign languages and the new information technology

The absence of united, clearly structured, theoretically grounded and practically developed approach to language acquisition by means of Information and Communication technologies (ICT) in higher schools is considered to be a disturbing factor in attaining high quality level of academic language and efficiency of learning/teaching process. The necessity to raise the quality level of English language skills, used by students, made me look for the relevant approach and linguistic – didactic model, testing it from the point of view the students and the instructor. The cognitive constructive approach is efficient in language acquisition in higher school. It is evaluated according to certain criteria. For example, studies can be constructive if students acquire knowledge and skills themselves, on their own, connecting this acquisition process with empiric environment; if new knowledge is based on previous knowledge; if students set their goals themselves and so on.

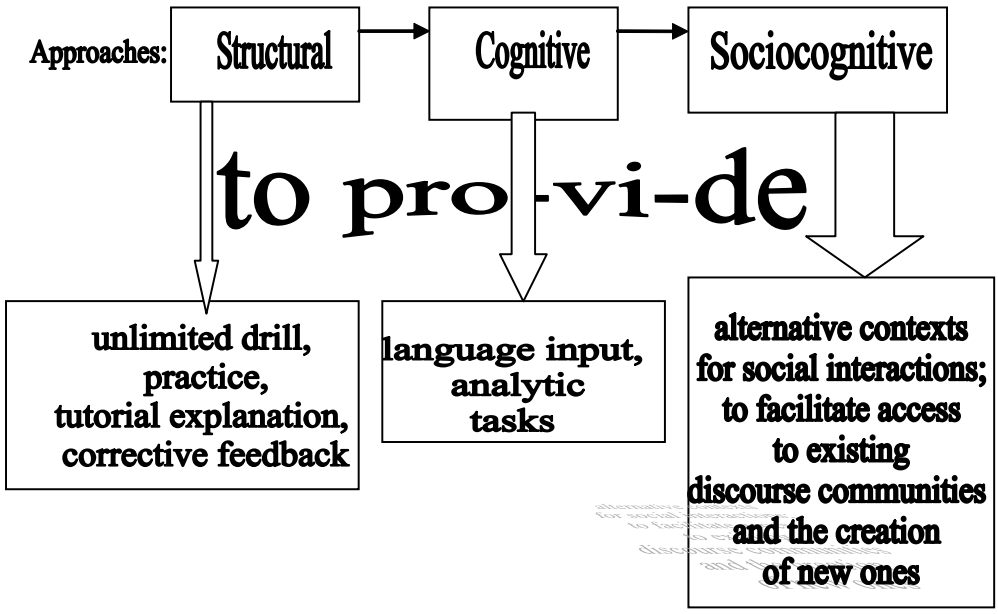

Figure 1. The role of computer use in language teaching.

Nowadays when Latvia has become a member of European Union, the importance of studying foreign languages has grown due to the international contacts of professionals and the opportunities for co-operation in various fields of science, technology, education and culture. Only a specialist armed with the knowledge of foreign languages will be fully competitive on the present-day labour market.

At RTU the language instructors offer professional language training based on the technical terminology in the particular field that would allow the graduates to pursue employment or further education both in Latvia and abroad. The Bachelor Studies Program in English Language was developed in conformity with the guidelines of the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (Council of Europe, 2001), considering also the outcomes of the LEONARDO project, which involved language teachers from the Baltic universities and the general recommendations of the RTU Institute of Languages.

Teaching and learning of foreign languages, in particular, English, are aimed at RTU at achieving the following aspects:

1/ selection and development of professionally and cognitively meaningful study content based on the personal experience of each student;

2/ development of the students' ability to work in class and independently;

3/ development of communicative skills and use of communicative exercises simulating

real-time situations to encourage students to express their views and opinions when communicating with other students and instructors, as well as with potential employers on the world-wide labour market;

The main aims of the Bachelor programme to be achieved in different language aspects are: reading, speaking, writing and listening skills. In this article I am going to concentrate on the aspects of reading skills and the use of technology in the process of teaching.

The basic task of reading is that the student should acquire skills necessary to work with the text, such as perception of the text as a whole and its details, which may be viewed as separate and at the same time as interconnected elements. For this purpose, students are studying different methods of reading professional texts useful at the initial stage of their studies such as skimming, scanning, word by word reading, study type reading, fact-reading, light reading. This develops the students' ability to find the necessary information in the text as regards the language aspects i.e. lexical units, grammar and also professional aspects i.e. the contents and meaning. It is particularly important that the students should be positively motivated to read foreign sources in accordance with the chosen profile of studies.

The texts for reading comprehension we classify in accordance with:

- recommended general themes;
- themes under LEONARDO project which could be optional;
- technical texts from mass-media and patent documentation.

Application of the Internet as the resource of information

The criterion to follow when using technology in the classroom is its ability to contribute something different from non-ICT approaches. In the area of reading although the quantity of reading material available to use is now enormous, via the Internet in particular, this does not mean that the best approach is to let students read on the screen. We distinguish the types of reading task we are aiming to practice and develop. Skills such as scanning, comparing information can be done on-screen. However, other reading skills, particular those involving longer texts, are probably better done on paper. If we look at Grellet's list (Grellet, 1981:12-13), we could argue that skills which are best taught on paper include reorganizing information, reordering events and others. In this case ICT may serve as a resource for the instructor with texts being identified and printed, but not to be used directly.

We have used different sources of authentic information for educational needs. One area where technology can certainly contribute to the reading classroom is the range of available texts, the increased *variety of accessible text-types*. It is possible from a teaching point of view to have an 'electronic textbook' updated with current affaires materials, chosen in advance by the instructor. Creating 'electronic textbook' in the form of Web pages and offering them on the Internet involves two steps:

a) creating the pages and saving them to the hard disk drive or/and CD-ROM;

b) transferring the pages on an Internet-accessible server.

These steps were fulfilled for creating on-line texts for educational needs. Free of charge software was downloaded. Before downloading each text-material was classified according to its professional application i.e. faculty so that each faculty had a certain number of texts, exercises and tests. The location of the sample text-materials are shown at Structure 1. It contains the list of tables, texts and essays which were used for the students of Data Information Technology Faculty.

To make the Web page publicly available throughout the Internet, in other words, to allow the students to view on-line, the Web page was stored on an Internet-accessible Web server of Riga Technical University and had address or Uniform Resource Locator http://www.rtu.lv/entxt. The block sheme of texts being organized according to the faculties is shown ar the Figure 2; an example of typical Internet address and catalogues of texts are copied university software and are shown at Structure 1: Sample of the Internet address and catalogues.

The next abbreviations were used:

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DITF – Data Information Technology Faculty;

ETF – Electronics and Telecommunications Faculty;

EEF – Electrical and Power Engineering Faculty;

AF- Faculty of Architecture and Urban Planning;

TMF – Faculty of Transport and Mechanics;

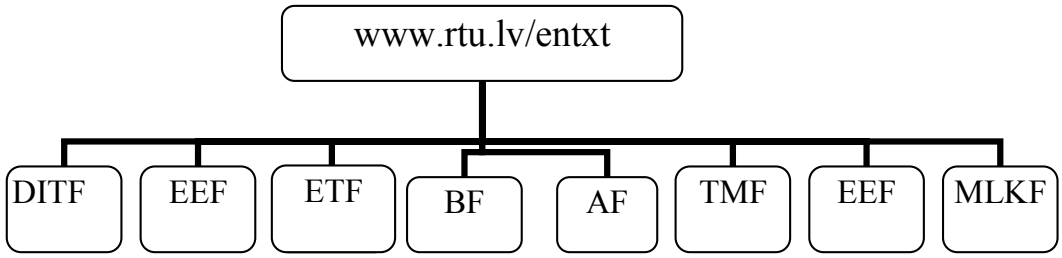
BF – Faculty of Building and Civil Engineering;

MLKF- Faculty of Material Sciences and Applied Chemistry;

EEF – Faculty of Engineering Economics - that composes eight faculties of Riga Technical University.

Each faculty had its own access to the chapter in the textbook.

Figure2. Location of texts catalogues according to faculties.



Structure 1: Sample of Internet address and catalogues

http://www.rtu.lv/entxt/ To Parent Directory]
05.01.21. 15:55 <dir> Computing
05.01.21. 15:57 <dir> DITF
05.01.21. 15:59 <dir> Ig1_7
05.01.21. 16:02 <dir> T2_25

To simplify the instructor's work students were offered to create *a common group's e-mail address* that received data that were sent by an instructor. The students are supposed to visit this address at any time they need. An advantage of this type of communication is that only the students of only one group carry out the tasks being offered.

One more activity which has often been used is the application of *text searching* on the Internet. As known, ICT also requires new skills, e.g. 'hypertext reading'. This is distinctly different from paper reading as it requires the ability to extract information quickly and to choose in a relatively active way how to proceed on to linked parts of the same text or linked other texts elsewhere, so as to get the required information and then the ability to go back, and then forward again as necessary. It is the skill which students can only learn through ICT resources. A calendar plan was given to a group of students which, contained addresses of definite web-sites and the tasks to be fulfilled. The next lectures were devoted to the analysis of text and tasks.

Conclusions

The computer can play multiple roles in language teaching. It originated on the mainframe as a tutor that delivers language drills or skill practice. With the advent of the multimedia technology on the personal computer, it serves as a space in which a user can explore the virtual world. At last with the development of computer networks, it now serves as a medium of local and global communication and a source of authentic materials.

The computer communication technologies centred on the Internet has provided new frontiers for the educational needs as well. Education has to consider the implementations and opportunities

offered by the new technological environment for learning. Theoretical foundations for network-based learning are *social* as well as *cognitive* in nature and that uses of computer-mediated communication have focused on creating discourse communities. One may say if the *cognitive* paradigm engendered research that looked at the development of individual processes, strategies and competences then the *sociocognitive* paradigm and an emphasis on learning through computer networks have brought about a focus on the way that discourse and discourse communities develop during use of computer networks.

In the teaching language skills in particular reading, from my point of view, we, instructors, need first to devote time to the pedagogical decisions as to which precise sub-skill we wish to develop. Only then we can turn to technology to see if and where it fits with our decisions.

In the context of language education, computer networks make it possible for learners to take part in on-line foreign language studying and to extend their communicative experience to worlds far beyond the classroom. These possibilities have led to great expectations of how computer networks will enhance language learning.

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