Modern Information Technologies in Teaching Adult Learners Foreign Professionally-Oriented Communication

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This article deals with the problems of teaching adult learners foreign languages (English). With the help of multimedia, video projectors, electronic screens and networks there appear new opportunities for mass and more effective language learning, connected with the organization of the foreign language environment and visualization of the physical or informational objects of the language. Therefore it is necessary to rethink and refine a great number of issues in the foreign language teaching, including the system of relations in the paradigm «computer – adult learner,» as well as the role and importance in this system of the teacher herself\himself.

Keywords: adult learners, informational technologies, multimedia, teaching foreign languages, English, communication, professional oriented.

Introduction

Today a cardinal event in the educational field is the widespread adoption of information technology in the learning process. Thus it is necessary to understand the main thing – it is necessary to saturate educational institutions with up-to-date computer equipment and high-speed networks. This excludes the extensive way of development of higher education, and above all it gives us method and tool for the qualitative change of internal state of the whole Russian system of education that does not fully meet the requirements of modern informational society.

Soon all universities will prepare lecturers or instructors for the new informational – teaching technologies using advanced knowledge in the field of pedagogy, didactics, psychology, cybernetics, and multi-dimensional graphics, artificial intelligence, multimedia, and computer design. It's vital to fill all the gaps in the areas of education, where there is no methodology for the development of electronic textbooks with multimedia, as well as scientific justification for approaches to teaching adult learners in a modern informational environment. It must be added that the widespread of presentation equipment in universities far outstrips the possibility of the home industry, specializing in the production of educational software products. And here the main problem is seen in the improvement of the scientific and methodological basis of the development of the multimedia based training

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software products, especially for the professional-oriented communication of the adult learners. For this reason, there is a need to monitor the quality of any educational software produced in our country and those imported from abroad – their academic completeness, didactic value, and most importantly – efficiency in teaching foreign languages.

Informational Technology in Teaching Foreign Languages

It is important to prepare for the university' subject called "Foreign Language" (particularly English) high quality products, where the practice of using informational technology has never been highly developed, and where the number of local and foreign specialists who are working on the problems of creating and implementing e-learning multimedia materials for the foreign language still remains insufficient.

Our personal experience gained during the period of organizing and conducting numerous meetings, negotiations, international conferences and seminars, proves a lack of linguistic competence of the Russian adult learners. Communication and even professional oriented in the Internet chats and forums also becomes ineffective due to poor knowledge of foreign languages. With the advent of modern digital equipment, such as multimedia screens, video projectors and networks there appear new opportunities for mass and more effective language learning, connected with the organization of the foreign language environment and visualization of the physical or information objects of the language. Therefore it is necessary to rethink and refine a great number of issues in the foreign language teaching, including the system of relations in the paradigm "computer – adult learner," as well as the role and importance in this system of the teacher herself\himself.

Informational technology in the learning process involves the use of the three main

components: a PC, multimedia tools and online communication. Together they form the informational and instrumental learning environment for the self-learning activities of professional oriented communication of the adult learners and monitoring of their operation with educational materials. With the help of multimedia tools we can easily make the most informative training material. For example, in educational texts in the subject "Foreign Language" it is convenient to allocate the right words, phrases or sentences in italics, bold, signs, etc. in order to render the teaching methods and thus not only increase the information load on the adult learner, but also to ensure its best perception. Since the 90's. we began to use the hypertext in the learning system in which any element of text information using cross-references are dynamically linked in a sequence where the displayed text becomes non-linear in structure and can be read by adult learners in their own version, that it is more close on the existing state of their knowledge. Consequently, in an interactive mode the text structure adapts to the needs of the adult learner.

At the same time the idea of the research is put into action and finally the study (information retrieval), systemic perception of the material, is eventually formed (Bork , 2002: 56).

Hypermedia is a logical generalization of the idea of the hypertext in many environments –we mean that it is, a dynamically linked files with textual data, graphic, audio and other information. Hence the apparent variation in the construction of the educational programs, so media is not just a product, it is technology of the interactive educational process (Reusser, 2003: 157).

As a demonstration of multimedia training programs is impossible without a computer, their interaction actually leads to the unification of technical training with visual aids, and to the acute increase of training opportunities. Firstly,

multimedia can simultaneously stimulate a person's more than one "way of perception" and it helps to keep the attention better (Guriev, 2006: 82-83). Secondly it is a cognitive tool for the learning process, enhancing the adult learner's mental capacity at the stages of thinking, problem solving and analysis of the results. Thirdly media data doesn't need any intermediate form of "encoding", as it happens with traditional transfer of knowledge from teacher to the adult learner, as a means of expressing any abstractions, including the creation of "virtual reality". Fourthly, the media is responsible for constructive style of learned subjects, it stimulates a person active position that allows users to dive back into the events of the lesson, and better appreciate them, demonstrates the huge number of information capabilities, reduces the gap between theory and practice, making the last – a part of educational programs.

Prospects and Further Improvement of the Information Technologies

Among other well-known expression aids multimedia is not only the universal one, but it is also "self-sufficient," because with the help of aids you can monitor the effectiveness of the learning process.

Today, experts do not doubt about the prospects for further improvement and dissemination of information technology in educational sphere. There are areas where their use is more than justified – computational mathematics, mathematical modeling, automatic control, information theory and communications, etc. Some doubts arise in the field of humanities, where the use of computer as a computing machine, is not so obvious, because there is no tradition of its systematic use, and where the level of knowledge of information technology is poor (Inkova, 2000: 23).

According to the forecast of B. Somekh preparations to the lessons will take teachers about half time to spend on developing their own teaching materials. All curricula and course programs will be (or even are) stored on the Web-site\main server and will be available to teachers and learners.

Educational materials will be developed by teams of teachers or downloaded from the national education network. Educational software will be installed on each learner's PC.

The multimedia textbook refers to the process of formation of foreign language knowledge and skills, in which the initiative of action is transferred to the adult learner. In order for these initiatives to be effective, it is necessary for the development of software to use the didactic principles of teaching, taking into account the individual abilities of the adult learners, their awareness, consistency in work, etc. More generally viewed the need of a theory of learning that takes into account the specifics of the paradigm of "computer – learner." The characteristic features of computer technology courses are:

1) The active position of the adult learner (an individual choice of the way of comprehension of educational material from options provided by a team of developers in the program);

2) The transition process of learning from the category of teaching in a qualitatively new category of learning foreign languages on their own and consciously;

3) Interactive communication with the educational environment (digital libraries), and the education community (Consultants, partners, colleagues);

4) information variety and flexibility of teaching methods with a computer (speed control training with animation effects, support the picture of words, the statistics of questions and answers, the optimization of load, etc.);

5) "immersing" learners in that which is called an information environment that it is best to motivate the study of language.

These features indicate that we are dealing with a student-centered approach. Consequently, the paradigm of "computer – learner" provides the learner the freedom of choice and decision making in the educational process. The learner should personally understand, according to what strategy he prefers. J. Rubin and I. Thompson (Sanchez, 2006: 355) considered in this case, several possible strategies: "show some awareness," "will organize their own learning," "be creative", "learn to cope with uncertainty," "Learn from your mistakes", "use context." Thus, the existence of a paradigm of "computer – learner" is held on the following didactic principles:

- naturalness principle, which states that educational technology person should be in tune with his biological nature, and spiritual needs;
- the principle of activity that requires the adult learner to a large psychological stress: attention, thinking, memory and will;
- the principle of individualization of learning that takes into account the individual abilities of adult learner in the course of employment;
- the principle of intensity, providing the maximum amount of learning material with a minimum training;
- the principle of clarity;
- the principle of optimization, which calls for a conscious choice in the learning process of the optimal option with regard to its effectiveness, time and resources;
- the principle of consciousness, which implies an understanding of student learning objectives.

Can this approach be considered as further development of the idea of communicative activity – or task – oriented approach to learning? There are several grounds for such reflections. Firstly, the study and the use of language are the forms of social activity, which manifests itself in situations of negotiation, cooperation, or simple human communication. Secondly, the study of language is accompanied by the involvement of the learner in the assessment of "university" at risk, decision making, test hypotheses, develop action plans and self-test. Thirdly, the language has a specific context: that the study of language is the reflection of the interactions present in the study of the work situation. Fourthly, a necessary element in the process of knowledge is freedom of choice, which requires a certain learning internal motivation and will. Fifth, linguistic activity is generally all that can support adult learners in various aspects of the language.

It's interesting to note, that, whether, in this case, the paradigm of "computer – learner" can take into account all the above mentioned features? Analysis of scientific-methodical literature allows us to give an affirmative answer. In particular, British scientists K. Mack, and R. Oliver Louglin claim that the computer is a communicative tool to support the activity theory of Vygotsky, according to which the interaction with adult learners – learning opportunities is determined by socio-cultural environment – or rather, the contradictions between requirements of training and opportunity to train as a driving force of mental development of the latter, provided that these requirements are available, they are in the "area of proximal development." For example, the ratio of learner-teacher develops in the direction of increasing the language competence of the adult learner. In this case language becomes an integral part of supporting information, which provides and communication, and intense of the materials. In (Johnson, 2005: 75-83) and some other works it is shown that use of the computer by learners actually leads to

increasing communication between them and to fruitful use of language.

Analyzing the nature of the educational process as a "negotiation pattern", Laurillard (Litynski, 2007: 129-139.) names 4 main types of communicative actions necessary for the organization of the learning process: interaction, discourse, adaptation and reflection.

Media guide can be made adaptive to situations and change its own tactics issuing assignments of educational materials depending on the results of the previous phase of the adult learner, either by his personal choice.

The learners can adapt their perception by means of the imitation model, as well as on the basis of instructions laid down in the program. Teacher may extend or enhance the adult learners experience by organizing their interactions with the computer-based model. Since there are feedback loops, the adult learners perceive the resulting changes in the output of models (such as a replica of images or motion) and take appropriate decisions. The adult learners can utilize the experience of working with multimedia guide in their future work, and guide can help with the recording, all learners actions. Summarizing the above mentioned, we formulate some general requirements for the multimedia guides:

1. The learner should have direct access to the interested field of study.

2. The software should have a clear and concise instructions.

3. The software must be able to connect the feedback to control states of learning.

4. The objectives of the exercises embedded in the software must be accessible and understandable to the learner.

Trends in the use of the new teaching technologies are the following – all information will be posted on Web-sites and will be accessible to the wide range of users. On the basis of our national educational system will be create an open and long-term education. However, the popularity of such systems to users will depend on the perfection of the organization of the data base, the attractiveness of software for educational purposes and effectiveness of individual work with them. Similar problems are mentioned in the case of mass learning of the foreign languages especially with the help of information and communication technologies. Meanwhile, it is obvious that the methodology of designing educational multimedia software can be applied in the development of not only individual variations of electronic multimedia textbooks, but also for the implementation of more complex tasks such as projects to create Web-sites or electronic textbook in which the adult learner is able to find the historical, country, lexical and other information, and using the built-in simulator in order to improve his\her language skills. All e-books today include hypertext, multimedia and hypermedia, as it was discusses above. A new type of electronic textbook can be fully virtual, allowing a spatial map of linguistic knowledge. The main intention of this section is that on the basis of the new informational technologies could create an educational environment in which the dive will allow the user to become an active accomplice. This possibility, in our opinion, provides the technology of virtual reality. The main idea is in the construction of three-dimensional artificial world, capable of displaying in graphic form, to reproduce or simulate various aspects of our reality.

Conclusion

The practice has shown that for the introduction of the new material, the best thing is to use multimedia guide –there should be the audience with several computers and a video projector with an interactive whiteboard, the leading role is still the teacher's and the role of adult learners is less important than the teacher's

one. During the training any adult learner can be selected as a leader of the group, which creates a mood of competitiveness among the learners. The main advantages of this multimedia guide can be seen in a variety of examples and in visibility of topics via e.g. video clips, graphs etc. On the basis of the work with the computer program in class, we've made the following conclusions.

1. Multimedia guides can support and strengthen the educational goals, but do not completely define them. Too easy to make a direct impact on the learner via computer program where you should act in the pedagogical and didactic plan more carefully.

2. In some situations it is better to use real objects than their imitation. For example, ask the learner to sing or read poetry and write them on your computer, and then give him the opportunity to hear them.

3. Technology of training with the computer program is the following: It is necessary to explain the first portion of the material and necessary actions in computer. Learners, who have worked faster than the others can explain it to their group-mates.

4. Classrooms should be equipped with modern electronic means of displaying multimedia – from video projectors, screens, or to interactive whiteboards.

The experimental work with multimedia guide – was aimed on checking the effectiveness of the proposed technology of the organization of education of the adult learners in educational and informational computer environment.

The complexity of the study was stated by the fact that the computer technology training was the only part of a very wide range of creative approaches to learning the foreign language. On this basis, we formulated the main purpose of experimental work: getting the necessary and sufficient data for experimental studies of the

mechanisms of the impact of the new educational technology including the skills of adult learners and comparative effectiveness of computer methods and teaching aids.

The progress done by the adult learners, was estimated by the final sessions, and by tests. For the purity of the experiment, all the necessary preparatory work was done, which ultimately became the basis of the selection of two groups of adult learners approximately with same level of knowledge and skills.

During the pilot study, we used the following methods of work:

1. Monitoring studies and actions of the adult learners

2. Conversations and interviews according to the arranged plan

3. Experiential learning.

4. Statistical analysis of the experimental results.

In fact, the experiment began in 2007 at the Tomsk Polytechnic University, with the number of adult learners – 20 persons (2 groups with 10 students each). Therefore, the first phase of the experiment lasted from 2007 to 2008 and was aimed at understanding of the psychology of adult learning and development of the approaches to learning English. At this phase, we solved the following problems:

1. Found out the features and preferences of adult learners according to the different types of visual aids: posters, books, pictures, slides, etc..

2. Identified methodological basis for the organization of the process of learning English through the participation of adult learners in role-playing games.

3. The composition of the necessary modules for adult learners of the foreign languages in oral communication.

4. The structure of educational and informational environment.

5. Developed training scenarios, implementation of which is possible with the use of multimedia technologies.

6. Put forward the basic scientific principles of conducting research in general.

The main methods of experimental investigation at this stage were: observation, interviews and reviews of themselves on the learning outcomes of the adult learners. Experience has shown that the level of readiness to learn English of the adult learners is different. It depends not only on the personal qualities of adult learners, but also from the professional environment, the need to use the foreign language (for example at conferences, preparing a course of lectures in the foreign language, etc.)

References

1. A. Bork, *Learning Through Graphics. In: R. Taylor(Ed). The computer in the schools: tutor, tool, tutee.* N.Y.: Teachers College Press, 2002.

2. B. Calica, G. Newson, *When did you get multimedia?* New Media. 2006. № 1. P. 48-52.

3. M. Guriev, *Transfering of multimedia information and education of the future* Multimedia. 2006. № 12. P. 82-83 (in Russian)

4. N.A. Inkova, *Methods for teaching and learning environment of hypermedia information the educational field* "Computer Science": Abstract. dis. ... Candidate. ped. of Sciences. Tambov, 2000. P. 23 (in Russian)

5. G.R. Johnson, *Creating Virtual Universities* Global J. of Eng. Educ. 2005. V. 3, № 2. P. 75-83.

6. P. Kozma, *Reflections on the State of Educational Technology Research and Development* ETR&D. 2000. V. 48, № 1. P. 5-15.

7. D.M. Litynski, W.D Lane, *Hypermedia and Learning: Promise and Practice.* Global J. of Eng. Educ. V. 1, № 2. 2007. P. 129-139.

8. U. Neisser, *Cognition and reality. The meaning and principles of cognitive psychology.* Blagoveshchensk: BGK them. IA Baudouin de Courtenay, 2008. (in Russian)

9. L.P. Pressman, *The method of application of technical training.* M., 2002. (in Russian)

10. K. Reusser, *Tutoring systems and pedagogical theory: representation tools for understanding, planning and reflection in problem solving.* In: Lajoie S.P., Derry S.J. (Eds). Computers as Cognitive Tools. 2003. P. 143-177

11. A. Sanchez, J.M. Barreiro, *Design of Virtual Reality Systems for Education: Cognitive Approach.* Educ. and Inf. Techn. 2006. V. 5. № 4. P. 345-362.

12. B. Somekh, *New technology and learning: Policy and practice in the UK, 1980-2010.* Education and Information Technologies. 2000. V. 5, № 1. P. 19-37.

13. Гуриев М. *Мультимедийный трансфер информации и образования будущего.* Мультимедиа. 2006. № 12. С. 82-83.

14. Инькова Н.А. *Методика организации учебно-информационной гипермедиа среды изучения образовательной области «Информатика»*: автореф. дис. … канд. пед. наук. Тамбов, 2000.

15. Найссер У. *Познание и реальность. Смысл и принципы когнитивной психологии.* Благовещенск: БГК им. И.А. Бодуэна де Куртенэ, 2008.

16. Прессман Л.П. *Методика применения технических средств обучения.* М.: 2002.

17. Bork, A., *Learning Through Graphics. In: R. Taylor(Ed). The computer in the schools: tutor, tool, tutee.* (N.Y.: Teachers College Press, 2002)

18. Calica, B., Newson, G., *When did you get multimedia?* (New Media. 2006. № 1). P. 48-52.

19. Johnson, G.R. *Creating Virtual Universities* (Global J. of Eng. Educ. 2005. V. 3, № 2) P. 75-83.

20. Kozma, P., *Reflections on the State of Educational Technology Research and Development.* ETR&D. 2000. V. 48, № 1. P. 5-15.

21. Litynski, D.M., Lane, W.D, *Hypermedia and Learning: Promise and Practice.* Global J. of Eng. Educ. V. 1, № 2. 2007. P. 129-139.

22. Reusser, K., *Tutoring systems and pedagogical theory: representation tools for understanding, planning and reflection in problem solving.* In: Lajoie S.P., Derry S.J. (Eds). Computers as Cognitive Tools. 2003. P. 143-177.

23. Sanchez, A., Barreiro, J.M., *Design of Virtual Reality Systems for Education: Cognitive Approach.* Educ. and Inf. Techn. 2006. V. 5. № 4. P. 345-362.

24. Somekh, B., *New technology and learning: Policy and practice in the UK*, 1980-2010. Education and Information Technologies. 2000. V. 5, № 1. P. 19-37.

Современные информационные технологии при обучении взрослых, обучающихся иностранному профессионально ориентированному общению

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В данной статье рассматриваются проблемы обучения взрослых иностранному языку (в частности английскому). С появлением современного цифрового оборудования, такого как мультимедиа, видеопроекторы, электронные экраны и сети, появляются принципиально новые возможности для массового изучения иностранных языков, связанные с организацией иноязычной среды и визуализацией не только физических или информационных объектов языка, но и семантических, не наблюдаемых в явном виде. В этой связи необходимо переосмыслить и уточнить многие вопросы обучения иностранному языку, в том числе систему отношений парадигмы «компьютер – обучающийся», а также роль и значение в этой системе самого обучающего.

Ключевые слова: взрослые обучающиеся, информационные технологии, мультимедиа, обучение иностранным языкам, английский, общение, профессионально ориентированное.