

INNOVATIVE METHODS AND MECHANISMS FOR INCREASING THE QUALITY OF EDUCATION AND TECHNOLOGY-BASED TEACHING AND LEARNING

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In this article the experience of JSC “Astana Medical University” on development and use of the interactive multimedia electronic books in English called “Professional English in Medicine” and “Progressive medical English” is described. The e-books are intended for training of students of medical specialties in reading and understanding of professionally focused texts and exercises and constructing on their basis of own statements. Interactive e-books are considered in this article, consisting of 2 parts (textbook and CD-disc) and they are developed taking into account the mental mechanisms and processes, taking place during the reading and understanding of the text, the system of pretext exercises is aimed at the development of abilities of professionally focused oral speech and pronunciation. Authors pay attention to these e-books, which are devoted for medical specialties as “Public Health”, “General medicine”, “Stomatology”, “Nursing” and “Pharmacy” departments.

Keywords: e-books, innovative, reading, understanding, technology, interactive multimedia, structuring, compression, system of exercises, oral speech

Nowadays there are a large number of the computer courses and programs intended for training in English of students of non linguistic higher education institutions. Today, schools and universities are being pressured more and more to improve the technology they use and teach in the classrooms. Innovative computer technology, E-books and English language in education are very important subjects in our country. Teachers of foreign languages of these higher education institutions created a number of training computer programs. Because innovative methods and mechanisms may enhance the learning and may help most students in achieving their academic objectives. However specificity of branch higher education institution does not always allow to use the training computer programs developed in other higher education institutions, in particular for each specialty the lexical filling has to be provided, the professionally focused texts are offered. Respectively, chairs and teachers of foreign languages continue to develop the new training of the computer programs intended for specific conditions of training and specialties of students. The combination of computer technology and appropriate English language teaching/learning methods may increase the academic knowledge.

In this article it will be a question of the interactive multimedia electronic books in English “Professional English in Medicine” for the first year students and “Progressive Medical English” for the second year students, as shown below, developed and tested on the basis of Foreign Languages chair of JSC “Astana Medical University”. The e-books are intended

for training of students of medical specialties in reading and understanding of professionally focused texts and exercises and constructing on their basis of own statements. We adopted technology-based Teaching/Learning in education for our students. If technology is adopted in education, it will make better future. Also high productivity, beneficial education and long-term advantages are expected [3; 4].



Fig. 1. Professional English in Medicine

The purpose of research is to identify the main studied themes, the main theoretical reference frameworks used as research support, and to characterize the research methodologies.



Fig. 2. Progressive Medical English

1. Main theme: images, audiovisuals, information technologies, teaching and learning, teacher's training, others.

2. Purpose: analysis, intervention, conception and development, others.

3. Object of study: pupils, students, teachers, materials, teaching and learning process, teacher's training, others.

4. Context: school (educational level), university, professional, others.

5. Theoretical references: behaviorist perspectives, communicational and multimedia perspectives, systemic perspectives, cognitive and constructivist perspectives, hypermedia approach and cognitive flexibility, others.

Tasks of the research:

1. To reveal the basis of technology-based teaching/learning use in the educational process.

2. To analyze the degree of research problem and scientific approaches.

3. To determine the existing tendencies of realization.

4. To develop experimental diagnostic instruments which allows to estimate the efficiency in educational process.

5. To develop the program and methodical recommendations of introduction these innovative technologies to the educational process.

Methods of investigation:

1. Methods of semantic differentiation which allows to differentiate the understanding by separate groups and to analyze the semantic object in different fields.

2. Methods of interactive learning.

3. Methods of problem based learning and methods of program learning are also deserved to use.

4. Methods of modern concepts of innovative technologies and E-books.

5. Empirical methods (observation, testing, discussions and etc.).

6. Experimental work, math methods of statistic data processing.

Development of an interactive multimedia e-books were preceded by the preparatory work including:

1) definition of texts' themes of an electronic books;

2) marking of texts taking into account mental mechanisms of understanding;

3) definition of work stages with each text;

4) drawing up questions, exercises and tasks to each text.

On the basis of the analysis of curriculum programs for the course "Foreign languages", eight themes were chosen for the "Professional English in Medicine": "Spinal column", "Human Brain", "Human Heart", "Human Teeth", "Digestive system", and so on. And twelve themes were chosen for the "Progressive Medical English": "Human skeleton", "Bone", "Human shoulder", "Female Urinary system", "Male Urinary system", "Human eye", and so on. On each of these themes professionally focused texts and exercises were selected [1; 6].

When determining ways of a marking of each of texts we relied on E.M. Vereshchagin and V.G. Kostomarov's work "Language and culture" in which the analysis of the text is carried out from the point of view of lingvo-regional geography. We believe that some conceptual regulations developed by the specified authors can be postponed for training in reading and understanding of professionally focused texts. Considering mental mechanisms of understanding of the text, authors allocate three mental processes:

1) text structuring by the reader;

2) compression, semantic compression of the text;

3) staking (giving the meaning to compressive structural units) [10].

Use of computer technologies when training in reading and understanding of the foreign language text gives the chance not only to include previously developed exercises directed on training in structuring professionally focused text and its compression in electronic book but also to type the text so that to facilitate its perception by students.

Visual representation of structure of the text, division of the text into semantic parts and placement of words into boxes, the opportunity to listen to every text and exercise, and all components of e-book are in colours, are represented to us very valuable advantage of computer technologies when training in reading and understanding of professionally focused foreign-language texts. Reading programs use drill-and-practice techniques to help with reinforcing young students' reading skills. This advantage allows to make active various mental mechanisms of understanding of the text that leads to increase of efficiency of educational process of a foreign language.

The first and the most complicated problem which people face with, it is to learn as many new words as it is possible, we mean, to enrich the vocabulary and put into words all your feelings and thoughts. During preparation for development of the electronic books we defined the following stages of work with the text:

1) introductory text reading having a pretext task (including the task directed on identification of structure of the text, for example to define its semantic parts, to make the plan of the text etc.);

2) division of the text into semantic parts;

3) work on each part of the text for the purpose of full understanding of the content;

4) presentation of new vocabulary in the program which is available in each part of the text and presenting difficulty to memorize;

5) removal of the found difficulties, an explanation of the difficult language phenomena;

6) direct reading of the text;

7) performance of pretext tasks and exercises aimed at the analysis of the language phenomena, development of lexical and grammatical skills;

8) implementation of the test for an operating control of the studied material;

9) conducting exercises by students aimed at the development of abilities of oral speech, their involvement in a professional discourse.

Pretext tasks and exercises were developed in a special way that students consciously considered the mental mechanisms taking place at understanding and memorizing of information containing in the text: structuring of the text, text compression, staking (attributing meaning to structural units of semantic parts). Such exercises are aimed at the development of abilities:

1) understanding of the main contents of the text (definition and allocation of the main information, separation of supreme information from minor one, establishment of logical or chronological communication of events and facts);

2) understanding of details, detection of the confirming or specifying information, establishment of interrelation, the comparative analysis of new and already known information;

3) information transfer with use of synonyms.

The complex of pretext tasks and exercises includes tasks for formation and improvement of skills and abilities of students in different types of speech activity, and also expansion of their wide range of interests, increase of level of the general culture and awareness in different areas of knowledge. For example: discussion of information containing in the read text, its interpretation, commenting, an assessment of the separate facts or events about which there is a speech.

The purpose of electronic book is – acquaintance of students with a professional discourse. The term “discourse” in various researches received various interpretation. We agree with A. I. Ivanchenko's statement that in practice of training in a foreign language in higher education institution the discourse should be considered as realization of communicative intentions in various situations of communication, in our case – as the oral statement, the message on professionally focused subject in a certain situation of communication [2; 9].

In this regard we will especially stop on the text tasks and exercises directed on formation of abilities to perceive and produce oral and speech messages in the various situations of communication with the use of actual and speech material of the texts included in the e-book. It is necessary to pay attention of students that the choice of speech means in preparation of their statement by them has to depend on a situation and partners of communication. We will give some text tasks developed for involvement of students in professionally focused discourse.

It is necessary to highlight that by means of computer technologies it is possible to form evident idea of ways of simplification of a language form of the statement. Therefore we included the block and logical diagrams of texts, visual support helping students to keep a large volume of text material in memory in the electronic book. Therefore,

we consider that the use of unique opportunities of the computer in the teaching field of reading and writing on foreign language is an important task now. The use of computer is necessary for more effective formation of reading ability in the process of teaching reading [5].

Computer can simulate, motivate, and optimize self-education. Computer at the same time will perform the following functions: to be a controlling device, determining the correct understanding; to be learning device, regulating the degree of student's self-sufficiency in the process of text understanding; to provide individualization of text understanding; to give the opportunity to perform a differentiated approach in the selection of texts and types of exercises for each student; to serve as a means of forming of self-control skills in the process of reading; to be a trainer-simulator, allowing you to work out quickly a particular speech action, necessary for the success of the activities in general [8].

Using a computer can be effective in the training of skills variety in reading: to teach correctly intone of the text, to help mastering necessary skills of reading techniques, to expand the perception field during reading, to increase the individual rate of students' reading, to form the ability how to use dictionary and reference books, to teach students overcome a variety of language difficulties themselves, to divide the received information from the text into the primary and secondary, etc. Series of tasks of independent training to overcome difficulties in the process of reading are given as an example of computer using for learning to read. We marked out series of tasks for the teaching of students' reading in English language. The purpose of these series of tasks is to form students' skills to overcome with language difficulties of text understanding [7].

At an assessment of level of students' abilities formation of oral speech we used the following criteria: adequacy of language means towards the character of a communicative task; logicity and sequence of a statement; statement volume; correctness of the speech.

In 2014 on Foreign Languages chair skilled training for the purpose of efficiency checking of the developed electronic book was conducted. 160 second-year students (ten educational groups) in total took part in skilled training. This training has been recognized successful, as students:

1) mastered the program themes included into the electronic book: "Spinal column", "Brain", "Heart", "Teeth", "Digestion", "Urinary system" and so on;

2) gained ability to understand the main contents of texts on the specified themes (paying attention to details, confirming, specifying or comparing new information with already known);

3) gained a number of skills and abilities in different types of speech activity (to discuss information containing in the read text to interpret it, to comment, to estimate the separate facts and events);

4) learned to choose speech means by preparation of the statement depending on a situation and features of partners;

5) improved common-language skills and abilities.

Nowadays the students of the first and second years of all specialties of JSC "Astana Medical University" as well as postgraduate students are engaged into the process of studying the e-books "Professional English in Medicine" and "Progressive medical English".

Themes that we covered during our research: theoretical and methodological frameworks; analytical studies; computer innovative learning technologies, E-books and requirements; psychological aspects of use of modern information technologies (positive and negative aspects); educational opportunities of technology-based teaching/learning; features of cognitive and intellectual activity of students during their study; experimental diagnostics of research and dynamics of motivation; methodology of E-books use in the educational process; criteria of evaluation efficiency of learning.

In conclusion of this article it would be desirable to hope that the experience of creation of the electronic books described by us will give help to teachers of non linguistic higher education institutions of medical specialties in development of modern educational literature of foreign languages. The innovative methods of teaching form analytic skills and give the opportunity to have an accessible and qualitative education. The aim of innovative methods is to create such methods and modes which raise the efficiency and productivity of teaching process. E-books can raise the level of efficiency in teaching, attract student's attention and develop such qualities as creative thinking, logic and easily enrich the vocabulary with interest. Using technology

refers to the use of computers and computer technology as tools and aids to help teachers teach and students learn, because some of the most widely used tools are found in the English Language classes. The innovative methods, technology-based teaching/learning may keep more students interested in the subject matter for a longer amount of time, and may contribute to the acquisition of more profound knowledge. Test results were higher. Thus, we can assume that given system of training is effective and recommend it to use in Universities with the necessary equipment.

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