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CRITERIA AND ELEMENTS FOR CHOOSING TOOLS TO CREATE AN E-MANUAL

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Abstract. *The article is devoted to defining the criteria for selecting the tools to create a modern electronic textbook. The justification of the need for certain elements of an electronic manual should be noted. All the mentioned criteria were tested by the author in the textbook "Modern Computing English". In addition, there are given the examples of the tasks and the conclusions based on this data.*
Keywords: *electronic textbook, e-manula, information and educational environment, multimedia.*

Introduction. Enough attention is paid to cognitive actions of students in the modern educational process, because they directly influence the mastering of educational material. Developing electronic textbooks for educational purposes, the teacher should take into account the psychological patterns of perception, memory, thinking, attention, as well as other features of students. The influence on the perception of the educational material is realized in the form of presentation of the material in the electronic textbook (background, font, extension and format of images, sound, video, tables, animation, computer models); the use of multimedia, audio and video components that enhance the presentation of the material, and also make it possible to be used for students with special needs.

Review of publications. The various aspects of the problem of electronic textbooks and manuals, their creation and implementation in the educational process were developed by the following specialists: electronic textbooks for school education (G. Saprykin), the basic concepts of creating video collections for the electronic textbook (V. Serov), questions of the theory and practice of creating electronic textbooks (E. Gaievskaia, L. Gryzun, M. Zhaldak, L. Zainutdinova, P. Zalmanov, V. Lapinski, V. Madzigon, N. Macoied, A. Ulman, M. Sherman), instrumental systems for creating electronic manuals , workshops in, examiners (V. Kruchinin, S. Yampolski) and others.

The purpose of this article is to determine the criteria for selecting the means to create a modern electronic manual or textbook, and justify the need for certain elements of an electronic manual.

Materials and methods. The paper uses and generalizes the materials in the framework of the dissertation research on the topic "Pedagogical conditions for the formation of a professional information and educational environment for the

training of future specialists in Computer Engineering", obtained during the compilation of the electronic textbook "Modern Computing English" for the training of students of computer specialties, as well as the result of an experimental verification of its effectiveness in the educational process.

We are considering the main criteria for choosing tools to create an electronic textbook. When choosing means, it is necessary to assess the availability of hardware of a certain configuration, certified software systems, specialists of the required level. In addition, it is necessary to take into account the purpose of the electronic textbook, the need for its modification and addition of new data, restricted amount of memory etc. Today, there is a significant amount of tools for creating electronic textbooks that can be grouped using a comprehensive criterion, including such indicators as purpose and functions, technical requirements, and peculiarities of application.

Most developers of so-called electronic textbooks or manuals offer a ready-made product and cannot simultaneously offer an effective way for application of this product. It should be noted that the main stages of developing an electronic textbook taking into account methodological recommendations are:
 • choice of sources;
 • development of the content and the list of concepts;
 • processing of texts by modules;
 • implementation of hypertext in electronic form;
 • development of computer support;
 • selection of material for multimedia implementation;
 • development of audio;
 • implementation of audio;
 • preparation of material for visualization;
 • visualization of the material.

When developing an electronic manual, it is expedient to select printed and electronic materials which are fully consistent with the program, easy for creating hypertext, contain a large number of examples and tasks in convenient formats.

The division of material into components consisting of modules, which are minimal in volume but close in content, is also carried out, as well as a list of concepts that are necessary and sufficient for mastering the subject. Subsequently, the texts of the sources are processed according to the content and structure of the modules; excludes non-listed texts, and those that are not in the sources are added; links between modules and other hypertext links are determined. Thus, a hypertext project is being prepared for computer realization. Hypertext is implemented in electronic form and, as a result, creates a primitive electronic publication that can already be used in the educational process.

The next step is computer support, user instructions for the application of the intellectual core of the electronic tutorial. Such an electronic textbook is ready for further improvement by means of multimedia. Later authors change ways of explaining concepts and statements and selecting texts for replacing multimedia materials, developing scenarios for visualization of modules to achieve visibility, maximum unloading of the screen from text information and the use of emotional memory of the student to facilitate understanding and memorization of learning material, visualization of texts, and computerized implementation of the developed scripts using drawings, graphs, and animations. "Modern Computing English" textbook includes computer and professional subjects from educational sites, sites for programmers and web designers, and modern news portals.

A textbook should contain links to videos which summarize topics, raise questions for discussion, or through which a teacher can test and enhance the level of listening skills. In addition, it should be noted that educational videos combine the way in which information is presented visually and audibly, so they contribute to broader perception and deeper assimilation. Materials on the YouTube site selected for the textbook are not always well-known, but meet the requirements of vocabulary selection, problem statement, and are as modern as possible and close to the conditions of natural communication or contain lexical units typical for modern natural formal and informal communication. With the combination of visual and auditory images, the selection of interesting content, students interest in educational material increases parallel to their desire to learn more about the structure of the site. To the right of the video, there are "similar videos" which a student can view in addition to deepen knowledge. This additional option is one of the manifestations of a professional informational educational environment that functions correctly. A student has free access to additional electronic resources for education, and a teacher contributes to such development, performing the role of a moderator and a facilitator. An example of such a task in the textbook may be the video "Life in 2050". If the classroom is equipped with appropriately (a PC for each student with free Internet access, a projector, a multimedia board), then work can be continued at the classroom due to viewing additional materials, selected or even created and uploaded by the students themselves.

The next non-text element of the textbook is the link to the infographics. Infographics is a visual way of presenting data in a graphic form. It can be used in training to illustrate certain data, to structure large volumes of information, and also to show clearly the ratio of objects to different parameters, and to demonstrate trends. Recently, infographics has gained wide popularity in politics, social sciences, and pedagogy. Within the course of studying the textbook, students have an opportunity to see several examples of infographics for confirmation of certain issues and for generalization of information on the

topic. One of the important additions to the standard advantages of infographics (visibility, color, capacity, facts and figures, ease of perception, individuality) on the Internet is that it can be interactive. An example of such infographics is provided to students in the textbook on the topic "The Internet of Things". Acquiring information in this way promotes not only the motivation for knowledge, the deepening of skills in the discipline, but also raising the level of computer competence. In the course students are also offered to create infographics themselves using the tools of the site piktochart. Such a task helps to develop creativity, ingenuity, self-esteem, and interpersonal skills. Future computer experts also have the task of comparing various services to create infographics based on productivity, efficiency, convenience, and a range of training opportunities. This kind of work requires the formation and development of research skills on the Internet.

The next e-visualization tool is active vocabulary flash cards. Unlike the paper version of such a training tool, its on-line version allows one to change the order of displaying words and expressions (ranking in alphabetical order or in the order of appearance in the text), repeating more often those units a learner has problems with, eliminate cards with the learned vocabulary and replenish the set of new ones. In the textbook, such a task is flash cards for the text "Worry For Retailers As Web Shopping Clicks Into Place" with the option of listening, eliminating a significant number of phonetic errors in the study of new lexical material, even remotely, without the participation of a teacher as a moderator. In addition, sites as quizlet offer additional opportunities for the comprehensive acquisition of lexical units: Learn tab trains a translation from Ukrainian to English, in Speller students must record the units which they have just heard (at different speed). In Test tab a student can perform tasks of different character to determine the level of mastering the vocabulary: translation, matching, multiple-choice questions, true / false questions. Performing tasks on such sites as a homework meets the requirements of an individual approach to learning, because each student chooses that form of studying lexical units and that speed of training which suits them.

The principle of openness of education in our electronic manual is achieved through the use of wiki sites. A wiki is a website that allows users to independently change the content of their pages through a browser using a simplified and more convenient HTML text markup. The open philosophy of wiki allows all participants to modify and complement the text. Such a scheme also has disadvantages, because it is open to obtaining flaws and false information from users, while a wiki allows a student to see the influence of their own thoughts, to find like-minded people, and to have conversations on certain topics. For example, on the site wikia is a student can create their own wiki at once to work with a new topic. One of the tasks in the electronic textbook is the compilation of the wiki on the given topic ("Computers in

business"), the other is the translation of the popular wiki from Ukrainian into English with the opportunity of final product individualization.

The electronic textbook contains modern types of educational work within tasks for independent development or tasks for the development of cognitive activities, including the creation of a Power Point presentation, mini-video on the Internet, recording and listening to podcasts, creating a post for a blog or social network, discussions on real professional forums, work with audio and tests on special sites. Each text is accompanied by one or more tasks, the implementation of which involves the use of ICT or Internet tools.

Conclusion. When creating a modern electronic textbook, the teacher must follow a clear algorithm of actions, thinking in advance not only about the text itself but also beyond the text content. The compiler of a textbook has to evaluate the hardware and software capabilities of a particular educational process, taking into account the peculiarities of application and the possibility of making permanent changes and additions. The materials for the e-manual should correspond a program, be short and easy to create hypertext, contain a large number of modern examples and tasks, have a convenient format.

The total volume of a textbook is divided into modules. Source selection and division into modules must precede the selection of materials for multimedia, audio and visualization. After a general selection, one should develop the above-mentioned materials and implement a variety of supportive ones.

Correctly selected and structured video materials, examples of infographics, online and offline flash cards, wiki sites provide the background for individualization of educational material, facilitation of its perception, developing the skills of independent cognitive activity, and increasing the level of students interest. Such tasks meet the requirements of openness and interactivity of modern education.

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DIFFERENTIATED APPROACH TO EVALUATION OF STUDENTS' RESEARCH ABILITIES

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Abstract. *The paper presents the problem of future specialists' inadequate perception of their attitude toward research work, caused by lack of transition from the acquired knowledge and skills to the formation and evaluation of their capacity for conducting research work under the curriculum program. The emphasis is prioritized over problematic aspects both in the training of future specialists and research selection. Based on the study of various behavioral characteristics of students, their acquisition of knowledge and skills a differentiated approach to evaluation of future specialists' cognitive abilities was implied, which arranged an opportunity to provide conditions for the development of a technological model for selecting students for a research.*
Keywords: *research activity, creativity, students, evaluation, development, technology.*

Introduction. The analysis of scientific and specialist literature revealed a lack of works concerning the development of students' abilities for research targeted at professional training, and also too weak combination of the educational process and research work. It has been found among the reasons the lack of transition from knowledge acquisition, the ability to form capacity to carry out research work within an academic subject area. Crudity of this problem alongside with the increased requirements of modern society to