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Improving the Competence of Teachers in Higher Educational Institutions through the Introduction of Automated Intelligent Systems

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ABSTRACT: In this article that significant successes have been achieved in the implementation of learning management algorithms, ensuring dialogue interaction in the educational process. The development of computer technology provides great opportunities for modernizing the learning process. Many new concepts have entered modern practice: a single educational space, a single educational information environment, a virtual university, massive open online courses.

Keywords; automated training systems, educational information environment, virtual university, unified educational space, unified educational information, massive open online courses.

INTRODUCTION

In it is noted that in order to draw up a curriculum in accordance with an automated training system, it is necessary to develop a competency model of a graduate, establish a relationship between a competence-based and disciplinary structure, distribute labor intensity between disciplines and develop tools for controlling the formation of competencies. The paper proposes to establish a direct connection between competencies and disciplines, although the authors understand that a discipline can only form part of a competence. An important element noted by the authors is the need to hierarchically detail competencies. At the same time, when drawing up a plan, the authors propose to focus on the formal requirements for compliance with hours, credits, weeks, etc., as well as on the logical following of disciplines.

In [6], it is proposed to consider not only the links between modules and competencies, but also to form connections between different kinds of competencies: competencies responsible for knowledge and skills, to link with activity competencies. The authors also propose to detail competencies, while the core activities are competencies, which are obtained as a result of competencies related to knowledge and skills, which in turn can also be detailed. The need for detailed competencies is noted in [7]. For each module, according to the authors of [6], input and output competencies are established, and the design of the student's learning path is based on the choice of those modules that form the competencies required by the graduate, and ordering them in accordance with the dependence of the modules on input and output competencies.

The development of network technologies and the spread of the Internet have opened up new educational opportunities, creating the preconditions for the development of distance learning and intelligent learning systems. There are online libraries, Internet textbooks and testing tools. There appeared virtual training laboratories, resources that provide network access to unique equipment and various data processing tools, Internet portals that integrate network resources intended for e-learning. The beginning of the 2000s was marked by intensive research in the methodological sphere of e-learning, consideration of the issues of standardization and unification of e-learning tools and technologies [1,3,4,5,12]. Massive open online courses and platforms that provide opportunities for the development of distance learning courses have appeared and entered the training practice. Modern adaptive systems based on the use of artificial intelligence technologies form a student's model and adapt the educational process to his individual needs.

MATERIAL AND METHODS

There are various terms for a computer-generated learning system. There are such terms as "virtual learning environment", "information-subject environment", "subject-based learning environment", "information-learning environment", etc. The most widespread term is "automated learning system". The authors of specific systems fill this concept with different content. Some researchers focus on automating the learning process, another part considers automated training systems as a tool for managing the learning process, the third group of researchers considers the purpose of an automated system to be to optimize the learning process. Currently, an automated learning system is understood as a complex of technical, linguistic teaching and methodological and software tools designed to organize a dialogue in the educational process, forming an environment, the filling of which does not require special knowledge in programming [9]. This definition is met by almost all currently available means of support and organization of distance learning. Learning systems are divided into two groups based on goal setting and management of the learning process. One class includes systems in which the goals are set by the user, and accordingly, the management of the learning

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process is also assigned to him, since the user's goals are unknown to the system. Such a system contains the presentation of educational material in various formats. This class includes an electronic textbook or training course, a full-text database, which makes it possible to work with texts of various authors. An electronic library is a collection of electronic teaching aids in various subject areas, supporting the function of searching for information (by keywords, by subject area). In the multimedia electronic textbook, the presentation of the academic discipline in the form of text is supplemented with files in audio, video formats. This allows you to visualize the studied processes and observe them in dynamics. An electronic textbook or teaching aid may contain means of self-control after the end of each section of the academic discipline. Learning systems of another class are characterized by the presence of built-in goals and a deterministic scheme for achieving them. Content material is structured, at the end of each section assimilation control is supposed which determines the further sequence of training. Systems of this class have, to varying degrees, the properties of adaptability and determinism of the educational process. An automated training system (AOS) of this type has a sequential scheme for presenting educational material. Depending on the test results, the student may be given access to the next section, in case of unsatisfactory results, it is suggested to return to the study of the current section.

If the system is characterized by a branched learning structure, the student in the process of working with each section has the opportunity to choose the depth of presentation of the educational material and the level of complexity of the final testing. Often the user has the opportunity to choose from text, audio, video format of presentation of educational material, choosing the optimal one, taking into account individual preferences.

According to the principles of interaction between teaching tools and the student, software tools can be divided into learning environments and learning programs. The learning environment assumes that the teacher sets his own learning goals and achieves them with the help of the program. Such systems are characterized by a lack of control, since the program does not know the student's goals. For training programs, on the contrary, determinism in setting goals and the presence of control over their achievement is characteristic.

A.O. Krivosheev [1, 12] offers the following classification of training programs:

- computer (electronic) textbooks provide an opportunity to independently study the educational content;
- domain-specific environments [1,2,12] represent software packages that operate on objects of a certain class;
- laboratory workshops provide an opportunity to perform laboratory work in various disciplines;
- simulators serve to practice practical skills;
- control programs are designed to assess the knowledge of students;
- instrumental systems [1,2,3,12] are designed to create educational programs;
- reference books, databases provide the student with various information of a reference nature.

The disadvantage of this classification is that modern computer systems for teaching purposes contain features of several classes from those indicated.

I. Saveliev [2] distinguishes automated training systems, which are defined as systems that allow the teacher to own courses in the system and program the algorithm for their study and individual software packages designed to automate labor-intensive processes, optimize, and study mathematical models.

A.V. Solovov [9] proposes to divide software products into two groups. The first is any software used in training. The second group includes instrumental systems designed for the development of training programs and the creation of training courses. However, modern systems have features of both the first and the second group.

In work [4] a multidimensional approach to the classification of computer learning systems is proposed, the following qualitative indicators are proposed: openness (the ability to connect external modules, change the subject area, change models and teaching methods in accordance with the wishes of the teacher, adapt to the level of training and learning goals), type of setting, the presence of feedback from the learner (contextual help, knowledge control, accounting for the learner's response to system actions), distribution (support for remote access, support for distributed information) the presence of built-in capabilities for organizing adaptive learning management. Modern teaching aids using computer technology can be classified as follows: multimedia encyclopedias, computer testing systems, simulators and training and laboratory classes, training systems development tools. Let's take a look at some of them. Multimedia encyclopedias, reference books, dictionaries provide instant access to the required information, articles contain audio and video fragments, animation. The most significant encyclopedias are Microsoft's Encarta, an electronic version of Britannica (1994). In 1996, Bolshaya encyclopedia of Cyril and Methodius ", in 2000 the Rubricon portal appeared. The disadvantages of this kind of systems include the lack of tools for the formation of practical skills in training, tools for controlling knowledge and skills. Computer testing systems are created to control the knowledge of students. The

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most advanced systems provide the user to define test parameters, create tests with various types of questions, process test statistics, and draw up reports according to various criteria. An example of such a system is Ellecta, created at the Penza State University, which is used both in distance learning and in the educational process. The system allows for interdisciplinary testing, optimizing the number of test items based on the developed algorithm. Testing systems are widely used in commercial organizations, thus automating the selection and certification of personnel. The well-known systems of the TestGold AveLife TestGold Studio company provide an opportunity to determine the level of professional knowledge and psychological characteristics of employees, to conduct remote testing. The advantage of such systems is the ability to quickly check the knowledge of users, the disadvantage, the lack of training functions, the ability to eliminate the deficiencies found in the user knowledge system. The capabilities of the two previous classes of systems are connected by the so-called computer training tools (in the translated literature E-Learning, Electronic Learning). Modern information technologies make it possible to integrate training systems with the information systems of an educational institution, providing opportunities for managing the learning process.

Most of the author's training systems offer users a set of templates that implement various components of the learning process, do not require knowledge of programming languages. Some AOCs have a specially designed programming language that allows you to implement more complex didactic schemes.

Among such systems, one can single out the CADIS system, developed at the center of new information technologies of the Samara State Aerospace University [89,90], which is currently used in some educational institutions of the Russian Federation. The technology of this system includes a methodology for designing educational and methodological complexes and technological authoring tools for their preparation and operation. The work in this system is structured as follows: the student gets acquainted with the theory in the process of using various materials, further consolidation and comprehension of the educational material occurs through the use of e-learners, virtual classrooms, knowledge control through testing. Practical knowledge of students is formed when working in virtual educational laboratories, simulators, computer systems for automating professional activities.

DISCUSSION

The problem of the quality of educational publications occupies one of the central places in modern pedagogical science and attracts the attention of a wide range of researchers. Various approaches to solving this problem are disclosed in the works of Beilinson V.G., Beshenkov S.A., Zakharova T.B., Zuev D.D., Kuznetsov A.I., Logvinov I.I., Ogorodnikov E.V., Polat E.S., Robert I.V., Ryzhakova M.V., Sokhora AM and others. Works have been published in which various quantitative and qualitative approaches to assessing the quality of textbooks in general and educational texts, in particular, are proposed (Matskovsky M.S., Mikk Ya.A.). In addition, there are separate works (Flesh R., Gunning R., Kincaid J., Spache G., Fry E.) related to the construction of mathematical models for the assessment and analysis of English-language texts by various parameters. A number of works are devoted to the use of frequency and other types of analysis to substantiate the structure of educational content and for other purposes (Grigoriev S.G., Grinschkun V.V., Ermakov A.E., Khmelev D.V.) Often these works are not provided special means of information technology that automate the process of assessing the quality of texts. However, no special research aimed at automating the assessment of the complexity of educational texts has been undertaken. Accordingly, the main approaches to the development of a methodology for its use have not been formulated. The contradiction between the need to substantiate the methods of automating the assessment of the complexity of educational texts for educational purposes and the absence of a special study that allows automating the assessment and constructing an appropriate methodology determines the problem of this study.

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The purpose of the study is defined as the development of information technology for automating the assessment of the complexity of educational texts and methods of using this technology in teaching practice. The object of the research is mathematical models and information technologies for analyzing and evaluating the properties of educational texts.

RESULTS

When solving the above problems, the following research methods were used:

- Substantiation and development of a mathematical model for assessing the complexity of educational texts, its verification and correction in relation to the peculiarities of the Russian language;
- Creation of an automated technology for analyzing the complexity of educational texts and assessing its productivity;
- Development of a methodology for the use of information technology analysis and correction of the complexity of educational texts in pedagogical practice and its experimental verification;

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- Evaluation of a number of school textbooks and manuals based on the developed methodology.

CONCLUSION

The subject of the research is to analyze the possibilities of automating the assessment of the complexity of educational texts based on statistical parameters using information technologies. The main hypothesis of the study is that information technology for assessing the complexity of educational texts will improve their objective characteristics that affect the effectiveness of assimilation if it is:

- be based on corrected formulas for assessing the complexity of texts, adequate to the peculiarities of Russian-language texts;
- built into mass technologies for working with text;
- equipped with a sound methodology for its use.

REFERENCES

1. Ageev V.N. Electronic textbooks and automated training systems. / V.N. Ageev - Moscow: Mir, 2001. - 79p.
2. Alexandrov G.N. Aleksandrov G. N. Programmed learning and new information learning technologies // Informatics and education. - 1993. -№5. -S.7-19.
3. 3.Andreychikov A.V. Intelligent information systems. / A.V. Andreychikov. - M .: Finance and Statistics, 2006.
4. Antipina N.M. Technology of formation of professional methodological skills in the course of independent work of students of pedagogical universities using the expert system: dis. ... Cand. ped. Science / N.M. Antipina. -Moscow, 2000 - 184 p.
5. Astakhova I.F. Model of a hybrid training system / I.F. Astakhova, E.I. Kiseleva // Modern science-intensive technologies. - 2016. -№12. - Issue 3. -WITH. 450-453.
6. Astakhova I.F. Algorithm for using an artificial immune system to optimize the target component of the educational information system. / IF Astakhova, EI Kiseleva // Bulletin of the Voronezh State University. Series System Analysis and Information Technology. - 2017. -№ 2. - S. 61-65.
7. Astakhova I.F. The use of an artificial immune system in the design of a hybrid learning system. / IF Astakhova, EI Kiseleva // Modern information technologies and IT education.- 2017. -№ 2. -C. 119-125.

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