MODERN FACTORS OF FORMING INDEPENDENT LEARNING SKILLS IN ENGINEERS USING DIGITAL ELECTRONIC TEXTBOOKS

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Abstract
This article presents ideas and considerations about the factors of using digital educational resources, methods of designing tasks, and tools in forming independent learning skills in students.

Keywords: Independent learning, digital learning resource, contextual tasks, educational website, electronic libraries, course project.

Introduction
To form independent learning skills in future engineers, internal and external factors are identified. The personal interest of future engineers in information and computer technologies; self-organization of students to achieve professionally significant results; the need for personal and professional self-development constitute internal factors. External factors - the presence of a structured electronic information educational environment, which includes a didactic complex of digital resources; skillful guidance, mentoring and support of the teacher in organizing independent educational activities of students; internal preparation of students of higher education institutions for organizing self-educational activities of students using digital resources.

The factors mentioned above allow us to expand our understanding of the causes and conditions that influence the effectiveness of digital educational resources.

Taking into account the identified factors, a set of organizational and pedagogical conditions was selected to form independent learning skills in future engineers. The organizational and pedagogical conditions for the formation of independent learning skills in future engineers using a digital learning environment are: stimulating the motivational attitude of future engineers to independent professional activity through the implementation of contextual tasks; involving future specialists in independent educational activities in creating technical projects using electronic resources that meet alternative professional requirements; and establishing pedagogical interactions in the organized and self-organized professional activities of teachers and students in an electronic information educational environment.

The first organizational pedagogical condition for the formation of skills is to stimulate the motivational attitude of students to independent professional activity through the implementation of contextual tasks of independent learning in future engineers.

Professional activity is considered as educational and professional activity of students - educational in form and professional in content[1]. The motivational attitude of future engineers to independent professional activity is defined as a factor that stimulates this activity, which is valuable for the student both in educational and professional activities, and in future professional activities[2]. The motivation of such an attitude of future engineers to independent professional activity is expressed in their conscious attitude to the goals and results of this activity, their attitude to the process of cognition, their desire to obtain new information for use in educational and professional activities [3].

The formation of students' desire to learn is one of the main problems of modern education, which consists of the following components: needs, interests, goals, and the content of the lesson for the student. [4]. The same learning activity has different meanings for different students, they have different interests, both in academic subjects in particular and in their future professional activities in general. It is necessary to develop students' interest in their future professional activities during the educational process in higher educational institutions. From the first year and throughout all academic sessions in a higher educational institution, students' positive attitude towards their profession, understanding the social importance of self-development in professional activities, directs students to strive for independent education. It is known that an active attitude towards independent study of the material among students occurs when the information has great practical value, arouses interest in its novelty, and helps to find answers to emerging questions.

This research work attempts not only to develop a positive attitude towards the subjects being studied in students, but also to form students' internal motivation for independent professional activity by understanding the essence of future activities in solving contextual tasks.

Contextual tasks are understood as tasks that model the subject and social content of professional activity[1]. Refers to the motivational nature of contextual tasks that describe specific life situations related to students' existing sociocultural experience. When creating contextual assignments, efforts are made to take into account students' knowledge needs and interests in the fields of design, computers, and information technology.

Contextual tasks are aimed at finding and working with additional specialized software or software components to improve design modules and electronic presentations for searching and processing information (preparing presentations, messages, reports, etc.); performing creative tasks on a professional problem [5].

Contextual teaching methods include initial problem isolation or problem situation creation, as well as problem-finding situations. This method reflects independent electronic activity by students to identify ways to solve the problem posed or arising, select the information necessary to solve it (electronic course of lectures on the subject of "Programming", electronic textbooks, electronic teaching methodical complex of subjects, Digital Learning Environment), select methods for demonstrating the solution, evaluate the results of the tasks, and determine the scope of further problems.

The second organizational and pedagogical condition for the formation of independent learning skills of future engineers is the inclusion of future specialists in independent educational activities in creating software products using an alternative professional digital learning environment. It is known that humans are active in creating new intellectual products,

especially in selecting and processing information. This research work requires students to be able to transfer knowledge and skills to a new situation, to see the problem, to combine and change the learned methods of activity, and to organize a fundamentally new path [6]. The transfer of knowledge and skills to a new situation, their conscious use, indicates a high level of intellectual development of students, their readiness for independent learning and creative knowledge.

Future engineers are involved in independent educational activities in the development of practical tasks in the subject "Programming" science laboratory and practical work, as well as in the implementation of a course project. The implementation of laboratory and practical work was carried out by students using electronic books of the reference book for the work and the electronic educational methodological complex of the subject.

The Science course project used a project method based on the ability to independently structure their knowledge based on a contextual task to develop students' cognitive activity and develop a software project. When creating a software product based on the course design, the student himself determines the goals and objectives of the project, the ways to achieve the goal (chooses a mathematical method for solving a contextual task, a programming language), as a result, in the form of a planned activity product, plans the procedure for his work, works with information (searches, collects, systematizes and analyzes data), and presents his projects using various electronic resources (educational sites, portals, electronic libraries) that meet professional requirements.

In conclusion, it should be said that the role of electronic educational resources in the formation of independent learning skills in future engineers is incomparable. Electronic educational resources create the opportunity to work with students, taking into account their knowledge, skills and capabilities. Each assignment, if given, includes tasks related to their professional activities, will motivate students to increase their interest in their professional activities.

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