



UDK 372.851

FACTORS OF E-LEARNING RESOURCES IN TECHNICAL UNIVERSITIES

Tursunov Mirolim Ahmadovich

**Lecturer, Karshi engineering economics institute,
Senior Lecturer of the Department
of Information Technologies
m.a.tursunov23@gmail.com**

Annotatsiya. Texnika oliy o'quv yurtlarida tahsil olayotgan talabalarning mustaqil ta'lim olish ko'nikmalarini shakllantirishda elektron resurslarning o'rnini beqiyosdir. Shuning uchun elektron ta'lim resurslarini modellashtirish jarayoni va modellashtirish bo'yicha fikrlar keltirilgan.

Kalit so'zlar: mustaqil ta'lim, modellashtirish, motivatsiya, shaxslararo ta'lim, avtonomiya, axborotlashtirish, interaktivlik tamoyili.

Аннотация. Роль электронных ресурсов в формировании навыков самостоятельного обучения у студентов, обучающихся в технических вузах, неопределима. Поэтому приводятся мнения о процессе и моделировании моделирования ресурсов электронного обучения.

Ключевые слова: самостоятельное обучение, моделирование, моделирование, мотивация, личностно-ориентированное обучение, автономия, информатизация, принцип интерактивности.

Abstract. The role of electronic resources in the formation of independent learning skills of students studying in technical universities is invaluable. Therefore, opinions on the process and modeling of e-learning resource modeling are provided.

Key words: independent learning, modeling, modeling, motivation, person-centered learning, autonomy, informatization, the principle of interactivity.

Introduction. Current changes in production, competition between industrial enterprises, the widespread introduction of new technologies without environmental waste, the growing demand for quality, energy and resource-saving technologies, require in-depth knowledge, skills and abilities of specialists in this field. Therefore, representatives of the industry, ie engineers, are required to constantly research, improve their skills and work on themselves. The role of rational use of electronic resources in the development of such qualities in engineers is invaluable. It is clear that one of the current challenges for future engineers is to develop the ability to learn independently using e-learning resources.

Literature review. The problem of pedagogical modeling N.V. Bordovskaya, N.M. Boritko, V.I. Zagvyazinskiy, V.V. Krayevskiy, I.Y. Lerner, A.M. Novikov, V.G. Rindak, G.P. Shedrovitskiy, V.A. Well-known scientists such as Shtoff have done research.

Research Methodology. Given that prospective engineers will study for four years at a higher education institution to earn a bachelor's degree, the process of developing independent learning skills in students should be time-limited, goal-oriented, structured, and integrated. The process of developing independent learning skills in future engineers through electronic resources should be organized as a

logically interconnected, structured scheme or model. It is necessary to consider the concepts of “model” and “modeling” in order to create a model for the formation of independent learning skills in future engineers through e-learning resources.

Scientific novelty of the article. The model is considered to be a system that can be imagined or materially realized by giving new information about the object, having the ability to perform the task of demonstrating or processing or reflecting the object of research. [1]. Based on the considered classification, a model is a system that includes elements that reflect the main aspects and relationships of the process of formation of independent learning skills in future engineers.

The models can be classified according to the following types:

- development of pedagogical conditions and models of professional activity on improvement of educational practice;
- in terms of completeness and content: cognitive (descriptive, structural, functional) models;
- convertible and mixed models.

In pedagogical research, models of structural functional, procedural, meaningful, substantial processes are discussed [2].

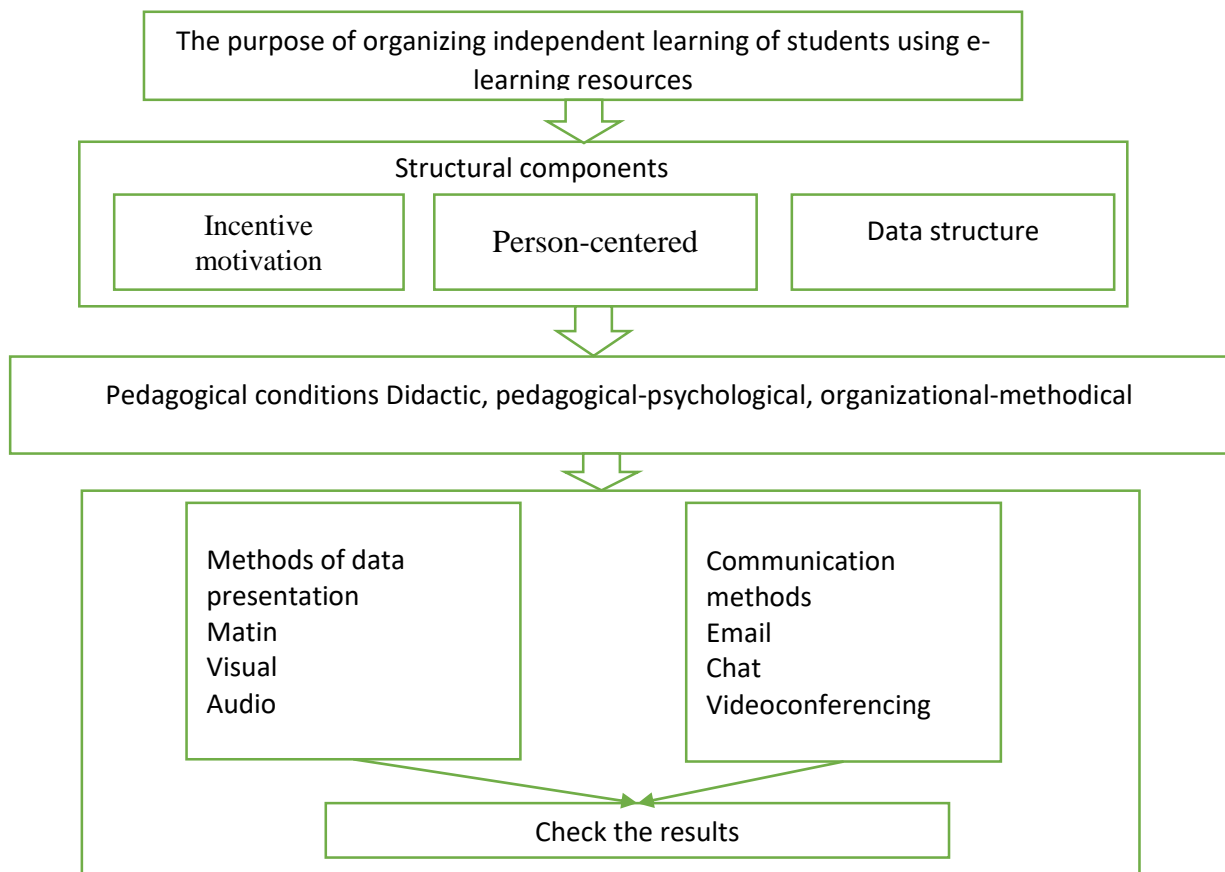
The main features of the model are: object similarity, simplicity, clarity and the availability of a user-friendly interface for working with the model. These features should be taken into account in the modeling process. Modeling is not only an opportunity to study an object and analyze the results obtained, but also provides a process for learning a new aspect of an object and creating it perfectly[3]. Modeling allows to represent the main elements of the objects, processes and events considered in the research work with conditional schematic symbols.

Analysis and results. Based on general information about the process being studied, the model is structured and broken down into key elements. It is then studied by obtaining the properties corresponding to the structural elements of the model, the analysis of the interrelationships, interactions and relationships of the model elements, the main possibilities of model development in the context of interaction with the external environment are diagnosed.

As a result, the availability and development conditions of the model elements are considered. The main link of the target block is to determine the goal of developing the ability to train independently in future engineers. The goal is the main element of the developed model, which affects its direction, structure, content, choice of tools, forms, methods and this expected result.

The methodological block includes a description of the principles and scientific approaches, and in their implementation provides the formation of independent learning skills in future engineers in the process of the higher education system.

It is assumed that the individual component of the approach is at the center of the process under consideration, the student himself, that is, the motives, needs, goals of the future engineer. A person-centered approach to developing independent learning skills assumes that the future engineer is focused on the individual's attitudes and guidelines for self-learning and independent learning.



Scheme 1: Components of e-learning resources.

The activity component of this approach serves as a basis for shaping the personal qualities and skills of future professionals in the course of their activities. E-learning resources should consist of the formation of the ability to learn independently, the action of learners in independent learning activities based on certain specific desires and motives aimed at a specific goal. This approach allows future engineers to contribute to the preparation of their goals, planning and organization of their activities, management, control, self-analysis and evaluation of the results of their activities.

Successful independent learning activities of learners: interest, passion, purposefulness, responsibility, creativity, diligence, self-organization, independent thinking, independent learning, self-criticism, skills such as learning reflexiveness, self-management and control depend on a complex of specific characteristics of students[4]. Given these circumstances, it is believed that the outcome of students' independent learning activities will largely depend on their personal orientation and personal qualities.

Individual-subject interactions and collaborations play an important role in the formation of independent learning skills between the educator and the future engineer within the framework of the individual activity approach. The teacher's work is aimed at helping students in the form of coaching and counseling to identify and reveal their potential in the process of independent learning.

The following are the guiding principles that ensure the process of developing independent learning skills in future engineers using electronic resources:



- The principle of self-organization implies that the professional training of a future technical engineer will guide them to acquire the skills to organize independent educational activities. This principle is implemented in the organization of independent work of students on the development of software products using a set of electronic resources;

- The principle of person-centered education is focused on the specific features and capabilities of future engineers, taking into account their initial training to work with electronic resources. This is done by the speaker in the form of assignments aimed at students using different types of electronic resources to use teaching materials of different complexity;

- The principle of autonomy presupposes the independence of future technical engineers in the implementation of independent educational activities for the development of the project program, its relations, goals and objectives of the activity, methods of its organization and planning. Project development technology is done by students selecting and using the necessary information from electronic resources;

- The principle of informatization includes professionally oriented information required for the study of disciplines and professional modules provided for in the curriculum for the training of highly qualified specialists, using the electronic information educational environment of the higher education institution involves the training of future engineers, as well as anticipates its application in solving practical tasks;

- The principle of interactivity is based on a friendly interface and remote access on-line and off-line and active interaction of subjects of the educational process (prospective engineers and teachers) in the electronic information learning environment of the higher education institution provides the effect. The focus is on solving these problems together, teaching each other and helping each other.

The content block of the model presents the types of independent learning skills of future technical programmers, organizational and pedagogical conditions, their stages of formation, basic tools, forms and methods. This model block consists of the following types of independent learning skills for future engineers: organizational, information analysis, reflex, formation process. Organizational skills of independent learning of engineers - this is the understanding of the social significance of the future profession and the importance of this activity in it, the goals necessary for the conscious management of independent learning activities in the development of projects for students are identified and planned.

Information-analytical skills of independent training of future engineers Ability to develop projects based on technological assignments using various sources of necessary information and to search, analyze and use special software for projects. These types of skills are necessary for the rational use of electronic resource data to optimize project models created by future engineers and to solve professional problems related to the practical implementation of developed projects. The analysis of projects developed on the basis of given technical assignments using e-learning resources is linked to the reflexive skills of independent learning in future engineers. Developing the reflexive skills of independent study will help future engineers to adequately assess their professional performance.

The formation of independent learning skills in future engineers is determined by the following tasks [5]:

- to develop the ability of future engineers to meet their knowledge needs and interests through independent learning;
- to develop skills in searching, analyzing and using sources of information for knowledge in future professional activities;
- develop skills in analyzing and evaluating independent learning outcomes;
- Ensuring a positive attitude to independent learning among future professionals, providing computer design through the use of various pedagogical methods and techniques;
- Determining the attitude of future engineers to continuing education - the most important aspects of his career are the formation of independent learning skills [6].

Conclusion. In short, e-learning resources need to be flexible enough for students to use. The use of such teaching in the teaching process plays an important role in the development of students' knowledge and skills in the formation of independent learning skills.

It is advisable to use e-learning resources for students to study independently.

It is advisable to constantly improve e-learning resources, taking into account the needs and desires of users.

References:

- [1]. Shtoff, V.A. Modelirovanie i filosofiya / V.A. Shtoff. -M.: Nauka, 1966. – 301s.
- [2]. Sputnik issledovatelya po pedagogike / A.M. Baskakov, Yu.G. Sokolova. – Chelyabinsk: Izd-vo OOO «Poligraf-Master», 2008. – 600s.
- [3]. Novikov, A.M. Pedagogika: slovar' sistemi osnovnix ponyatij. M.: Izdatel'skiy sentr IET, 2013. – 268s.
- [4]. Kuznesov, V.V. Obshaya i professional'naya pedagogika / V.V. Kuznesov. M.: Yurayt, 2016. - 140s.
- [5]. Atyaskina, T.V. Formirovanie umeniy samoobrazovaniya budushix texnikov-programmistov v professional'nom kolledje / T.V. Atyaskina // Srednee professional'noe obrazovanie. - 2015. - №7. - S.45-47.
- [6]. Bezduxov, V.P. Sennostno-orientatsionnaya deyatel'nost' kak predmet pedagogicheskoy refleksii / V.P. Bezduxov, I.M. Shadrina // Mir.
- [7]. Ergashev N.G'. "Using visual program technology methods in engineering education". European Journal of Research and Reflection in Educational Sciences Volume 7 Number 10, 2019 ISSN 2056-5852 Progressive Academic Publishing, UK www.idpublications.org 107-111 p.
- [8]. Kraevskiy, V.V. Pedagogicheskaya nauka i yee metodologiya v kontekste sovremennosti: sbornik nauchnix statey / pod red. V.V. Kraevskogo, V.M. Polonskogo. - M., 2001. - 445 s.
- [9]. Boritko, N.M. Metodologiya i metodi psixologo-pedagogicheskix issledovaniy / N.M. Boritko, A.V. Molojavenko, I.A. Solovsova; pod red. N.M. Boritko. — M.: Akademiya, 2008. – 320 s.