

The Role of the Digital Educational Environment in the Formation of the Competence of Professional Foreign Language Communication of Future Engineers at the University

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ABSTRACT

This article is devoted to the problem of the formation of readiness for professional foreign language communication among future engineers in the digital educational environment of the university. The problem of forming the readiness of future engineers for foreign language communication is relevant, since foreign language training is part of the professional training of engineers in the framework of the vocational education system. Professional training of engineers is a process of mastering general cultural and professional competencies, allowing to fulfill professional duties in the field of engineering. The professional competence of engineers provides: the effectiveness of the professional activities of engineers at enterprises, their successful resolution of job assignments that meet functional responsibilities, their interaction with the work environment and provides the basis for professional self-assertion and self-improvement of their personality. The article describes the concepts of “digital educational environment”, “competence of professional foreign language communication”, as well as a brief analysis of moodle distance learning system, identifies the components of readiness for future foreign engineers to communicate professionally at a university.

Keywords: *professional education, professional competence of engineers, professional foreign language communication, readiness for foreign language communication, digital educational environment, distance learning system*

1. INTRODUCTION

Modern socio-economic conditions, labor market requirements and the introduction of elements of informatization, computerization and digitalization put forward new requirements for the training of engineers, and it is also necessary to take into account the requirements of the employer when integrating professional and foreign language disciplines in the training of engineers.

New requirements for engineering education on the basis of a competency-based approach suggest that the educational process focuses on the development of general cultural, professional, and professional competencies laid down in federal state educational standards (FSSES), which are the key to successful professional activity of an engineer. Effective professional activity of an engineer largely depends on mastering his communicative competence, and also provides the opportunity for contacts with other people, exchange of information, development of interaction strategies in a professional team, interaction in a team of specialists, including foreign ones.

2. RESEARCH METHODOLOGY

An analysis of the scientific and pedagogical literature on the problems of vocational education (S.Ya. Batyshev, P.F. Kubrushko, V.S. Lednev, A.V. Morozov, etc.) allows us to conclude that the vocational education system is inherent certain characteristics, since it is aimed at interacting with the labor market. There is no doubt the importance and necessity of training personnel with knowledge, skills and abilities, not only in the field of interpretation and written technical translation using digital resources, but also experience in intercultural communication of a professional orientation. Similar requirements are presented by potential employers to future engineers. All these changes increase the demand for engineers capable of carrying out engineering activities in modern realities, taking into account the conditions determined by the digital educational environment.

Currently, a number of initiatives are being implemented in Russia aimed at creating the necessary conditions for the development of the digital economy, the “Strategy for the Development of the Information Society in the Russian

Federation for 2017-2030” is also of paramount importance [8]. The Decree of the President of the Russian Federation dated 05.05.2018 “On National Goals and Strategic Tasks of the Development of the Russian Federation for the Period until 2024” stipulates that one of the priority tasks in the field of education is “the creation of a modern and safe digital educational environment that ensures high quality and accessibility of education all kinds and levels ”[7].

M.V. Lapenok under the information educational environment means a set of tools that provide interactive interaction between the teaching, learning and electronic educational resources [9]. Under the digital educational environment A.V. Morozov understands the totality of digital educational resources, means and technologies that ensure the educational process in the context of digitalization [3]. This definition is based on the provisions of the Federal State Educational Standard and the current Russian legislation in the field of education.

The digital educational environment should create conditions and contribute to the formation of the competencies of a 21st century specialist, namely, according to the provisions of the Federal State Educational Standards of Higher Education (FSES 3+) for various areas of undergraduate studies, important universal competencies are “able to manage your time, build and implement a self-development trajectory based on the principles of education throughout life "(UK-2), as well as general professional competencies" the ability to solve standard tasks of professional activity based on inf culture and bibliographic culture with the use of information and communication technologies and taking into account the basic requirements of information security ”(OPK-2) and“ the ability to use modern information technologies and software, including domestic production, in solving problems of professional activity ”(OPK-3) For the formation of universal competencies of students in an educational institution, a sociocultural environment integrated with the information environment must be formed [6].

The issue of creating and developing the information educational environment of an educational organization (IOS) is considered in a number of state regulatory documents, including the Federal Law “On Education in the Russian Federation”, “Concepts for the Modernization of Russian Education until 2020”, and the digital educational environment (DSP) - in the priority project "Modern Digital Educational Environment in the Russian Federation" [4].

In order to determine the essential characteristic of the concept of DSP, which is a system-organized combination of data transmission tools, information resources, interaction protocols, hardware-software and organizational and methodological support, focused on meeting the educational needs of students [2], it is necessary to consider its components.

According to V.G. Manykhina [1], the composition of the DSP includes the following components: 1) an educational module that contains educational and methodological and reference materials; 2) a module for planning, organizing

and directly managing the educational process (administrative module); 3) a module for ensuring communication, which is designed to support the communication of students among themselves and with the teacher; 4) a module for operational control of the learning process results; 5) a module for managing the totality of resources and technical support [2].

The electronic information and educational environment in a higher educational institution is understood as the totality of information and telecommunication technologies, relevant technological tools, electronic information and educational resources, necessary and sufficient for organizing mediated (at a distance) interaction of students with pedagogical, educational auxiliary, administrative and economic personnel , and also among themselves [5]. In our opinion, the structure of the university’s digital educational environment can be represented in the form of the following components: the official website of the university, the Moodle distance learning system, student’s and teacher’s electronic personal accounts, electronic library systems, university corporate mail, an automated university management information system based on “1C: Enterprise”, the university’s official communities on social networks (Instagram, VK, Twitter, Youtube, etc.).

Currently, the distance learning system, the so-called modular object-oriented dynamic learning environment Moodle (Modular Object Oriented Dynamic Learning Environment), has become increasingly popular, due to its functional capabilities. This system provides an opportunity to implement such an educational environment that contains the entire set of compulsory educational modules, namely: 1) a module for organizing and managing the entire educational process; 2) communication module; 3) a system control module that allows you to implement courses.

The Moodle distance learning system provides the teacher with an extensive toolkit through which it is possible to present educational and methodological materials of the electronic course, conduct both theoretical and practical training sessions, organize student learning activities in individual and group form. The integration of diverse and multifunctional Moodle tools allows the teacher to design, implement and manage the educational resources of the environment. It is necessary to emphasize the simplicity of work in this system, which is due to the orientation of the system to a teacher who does not have in-depth knowledge in the field of programming and administration of databases, websites, etc. This system has a convenient interface, which allows the teacher to create and manage the work of the electronic course independently, using only a help system.

The author of the electronic course independently chooses and further uses the thematic or calendar structuring of the course, while thematic structuring involves dividing the course into sections by topic, and calendar structuring provides for the presentation of each week of the studied course in a separate section. Such structuring has gained particular popularity in the implementation of distance learning, allowing the learner to carry out optimal planning of their educational work.

The process of editing the content of the electronic course can be carried out by the course author in any order convenient for him, including the transformation of the text directly in the learning process. It is easy enough to make the necessary additions of elements: lectures, seminars, assignments, forum, glossary, wiki, chat, etc. This system has several advantages from the point of view of administering the educational process, which is explained by the fact that the organization and management module itself, directly integrated into the LMS Moodle, provides teachers with administrative rights the ability to register both teachers and students, defining roles, distributing rights, uniting students in virtual groups, while receiving all the necessary summary information about their work. Using the built-in calendar, the administrator determines the start and end dates of the training electronic course, sets the deadlines for the completion of specific tasks and students to pass testing. Creation of test tasks is carried out by filling in the appropriate fields in special forms, depending on the type of question used in the task, subsequently, being sorted, they are stored in a special database. By adding the Test element directly to the course itself, the teacher sets the number of questions that are subsequently generated from specific thematic categories of the database of test items, determines the maximum possible number of attempts to answer the question, and, if necessary, sets the timing of the test itself. The entire list of proposed questions can be used during testing, either in parts or in whole. In the latter case, the student taking the test may return to the previous

questions in order to correct him in the previously entered answers.

The system also provides for the mode of training testing, which assumes that in the event of a student's incorrect answer, it is mandatory to get acquainted with the correct answer, including the possibility of creating a comment on each version of the incorrect answer. The Moodle system contains the means of statistical analysis of test results, as well as various levels of complexity of a number of test questions.

The formation of the subject DSP by means of the Moodle learning process management system provides ample opportunities, the totality of the indicators of which allows us to conclude that today it acts as one of the most promising learning systems.

3. RESEARCH RESULTS

Analysis of research on the topic and a working definition of the competence of professional foreign language communication among future engineers give us a basis for highlighting the three components of readiness for professional foreign language communication: motivational, cognitive and operational-activity. Sustainable unity and a high level of these components is a sign of readiness for future foreign engineers to communicate professionally (Figure 1).

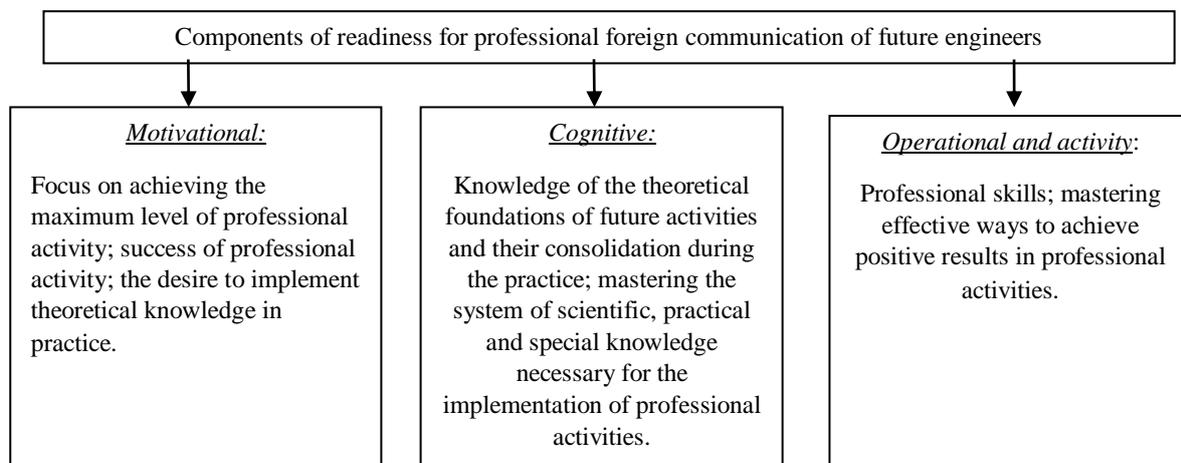


Figure 1 Components of readiness for professional foreign language communication of future engineers

The motivational component assumes an interest in foreign language communication, which is characterized by a person's need for knowledge, in mastering effective ways of organizing professional foreign language communication.

The cognitive component is a combination of professional and linguistic knowledge of the future engineer.

The operational-activity component characterizes the methods of activity of the future engineer, the abilities and

skills to establish interpersonal relationships with professional participants and colleagues.

Thus, the readiness for future communication of future engineers is considered by us in the unity of the three components listed above. Foreign language training is part of the professional training of engineers as part of the vocational education system. Professional training of engineers is a process of mastering general cultural and professional competencies, allowing to fulfill professional duties in the field of engineering. The professional

competence of engineers provides: the effectiveness of the professional activities of engineers at enterprises, their successful resolution of job assignments that meet functional responsibilities, their interaction with the work environment and provides the basis for professional self-assertion and self-improvement of their personality. The problem of forming the readiness of future engineers for foreign language communication is relevant.

4. DISCUSSION OF THE RESULTS

The practical significance lies in the fact that the results of the study can be applied in the practical activities of teachers of foreign languages in the process of optimizing the educational process of a university because: criteria-based assessment tools will be created to diagnose the level of competence formation of professional foreign language communication in a digital educational environment; a methodology will be developed for the implementation of pedagogical conditions for the effective formation of the competence of professional foreign language communication of future engineers at a university in a digital educational environment; guidelines for foreign language teachers will be developed.

5. CONCLUSIONS

The priority task of universities is the preparation of future engineers capable of: competently working with digital content; to carry out competent professional foreign language communication; improve the level of your language skills. Thus, the implementation of these tasks is possible with the effective functioning of the digital educational environment of the university. The introduction of new digital resources into the educational process of the university and the digitalization of education, in general, contribute to increasing the efficiency of the educational process.

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