Modern technical teaching aids as a component of the information and educational environment in teaching a foreign language at a maritime university

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Abstract. One of the main factors in the development and strengthening of the intellectual potential of the state, its self-sufficiency and competitiveness is education. Changes in the information and communication infrastructure have led to the fact that modern society imposes new requirements on the ways of acquiring and transferring knowledge and the role of a person in these processes. Reforming the methods and means of teaching a foreign language in a non-linguistic university is primarily associated with the use of new information technologies lies in the educational process of the concept of information and educational environment. The information and educational environment is considered in close connection with the system of developing learning and represents a set of conditions that not only allow the formation and development of language knowledge, skills, and abilities of a future specialist, but also contribute to the development of his personality, such a system of knowledge that he needs at this stage of solving the tasks of his development, which subsequently provides a real opportunity for mastering new tasks, increasing the level of complexity. The construction of a language IEE is based on principles that reflect the specifics of the studied subject and the learning environment itself, namely: openness, integrativity, systematic and consistent organization of educational material and its use in the educational process, interactivity, visual presentation of the material, multidimensionality, and redundancy of all components of the environment. The information and educational environment can be used as a resource for the formation of various competencies, the development of creative thinking and, most importantly, the striving for continuous improvement. The article examines in detail the resource and content component (RCC) of the information and educational environment modern integrated material and technical resources that contribute to the formation of the necessary competencies of graduates in the study of a professionally oriented foreign language.

1 Introduction

An important distinguishing feature of the modern stage of development of society is its increasing informatization. The introduction of the latest achievements in the field of modern information technologies in education has led to the emergence of the term information and educational environment (IEE). Informatization of education is one of the most important conditions for the successful development of the processes of informatization of society, since it is in the field of education that specialists, forming a new information environment of society, are trained [1].

Previously, the main task of the learning process was to familiarize students with the accumulated knowledge and contribute to the formation of certain skills. The dominant goal of training in IEE is to teach students, freely navigating in the information space, using, and processing the available information, to pose and solve cognitive tasks in each specific area.

The characteristic features of IEE are: 1) Openness, which is ensured by the interaction of the environment with the information and educational space and allows organizing variable training that meets the tasks of developing personality of the student. 2) The internal unity of the learning process – learning goals, teacher activities, student activities and the planned result. The unity of the learning process arises as a result of the conscious actions of the participants in the pedagogical process and is formed taking into account the content of the educational material, the best methods that contribute to the achievement of learning and development goals. 3) The multifunctionality of the learning process [2].

The environment can be both a source of knowledge and at the same time contribute to the organization of various forms of independent work of students. Information and educational environment allow realizing the didactic possibilities of innovative technologies, effectively organizing the individual and collective work of students.

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2 Materials and Methods

There are different points of view in defining the concept of information and educational environment.

Information and educational environment, for example, can be characterized as an open pedagogical system formed on the basis of a variety of information educational resources, modern information and telecommunication tools and pedagogical technologies aimed at the formation of a creative, socially active personality, as well as the competence of participants in the educational process in solving educational, cognitive and professional tasks with the use of information and communication technologies (ICT) [3].

Several authors in their works give a definition of "information and educational environment" – as a set of computer tools and methods of their functioning used to implement learning activities.

Some researchers consider "information and educational environment" as the information environment created for the purpose of educational process implementation [4].

According to other authors, the information and educational environment is considered as a systemically organized set of information, technical, educational, and methodological support, inextricably linked with a person as a subject of education.

The definition of the information and educational environment as a pedagogical system (PS) plus its support, i.e., financial, and economic, material, and technical, regulatory, marketing and management subsystems, also has the right to exist. Considering some problems of pedagogy in modern information and educational environments, it can be noted that the main elements of IEE are the following:

- information and educational resources in the form of printed materials;
- information and educational resources on removable optical media;
- information and educational resources of the Internet;
- computing, information and telecommunications infrastructure;
- application programs, including those supporting the administration, financial and economic activities of an educational institution [5].

The following definition of information and educational environment seems to us the most accurate and complete – an integral pedagogical system that integrates a set of interrelated components in the form of material and technical, software and information, didactic resources and innovative educational technologies, the implementation of which in the educational process contributes to the formation of the necessary and sufficient arsenal of general cultural, general professional and professional competencies.

3 Results and Discussion

Training a specialist ready for research, creative, constantly updated professional activity is a priority task of universities, dictated by the modernization of education, updating the content of methods and forms of education, integrating scientific knowledge, increasing complex scientific and applied problems of an interdisciplinary nature.

A modern specialist should be able to effectively interact with the information environment, use the full range of provided opportunities. The main requirements are imposed not so much on the amount of knowledge in a certain area of professional activity, but on the ability to independently develop them; the ability to define professional tasks and master the skills of their effective solution [6]. Depending on the goals and objectives set, various teaching methods, taking into account the growing needs of students, the development of technical progress are factors that contribute to the qualitative improvement and optimization of the educational process, guaranteeing its success. In this regard, learning environments must be flexible enough, and multimedia technologies must be carefully selected for effective learning.

In the process of teaching a professionally oriented foreign language, the following structural components of the IEE are distinguished:

- organizational and target,
- resource and content,
- technological and procedural,
- social and subjective.

It is worth considering in more detail the resource and content component (RCC) of the information and educational environment.

Resource and content component is a set of modern integrated material, technical, legal, scientific, didactic and human resources that contribute to the formation of the necessary competencies of graduates in the study of a professionally oriented foreign language.

Equipping classrooms, computer classes, rooms for extracurricular and independent work of students, libraries with audiovisual and computer equipment, licensed software, Internet access is the content of the material and technical resource [7]. Learning with the use of technical means is more student-oriented, interactive, communicative, less monotonous and routine. The use of technical means specially designed for teaching a foreign language has opened great opportunities for creating new sets of teaching aids, laboratory work, etc. The high efficiency of the use of technical means in teaching foreign languages has been undeniably proven by the practice of teaching foreign languages in our country.

The principles of using various modern technical teaching aids are based on the already established teaching methods, modified to varying degrees, modernized, and adapted to modern requirements of the theory of teaching a foreign language.

The main task in choosing a method is a scientific approach to the study of a foreign language, the widespread use of the achievements of linguistics,

psychology and methodology, the study of the interaction of native and foreign languages at different levels – phonetic, grammatical, and lexical.

The legal resource regulates the educational process through regulatory state documents in the field of higher education in accordance with the direction of training (FSES HE), through internal local documents developed and approved as part of quality management at the university (educational and methodical complexes in various disciplines), monitoring systems, providing objective information about the quality of the educational process (the fund of assessment tools).

The main requirements for IEE in an educational institution are reflected in the Federal State Educational Standard of Higher Education. At the same time, the information and educational environment includes digital educational resources, modern pedagogical technologies; organizational forms of information interaction between teachers and students, including telecommunication means; technological means of communication and information technologies, equipment, various databases.

The scientific and didactic resource involves the organization of the educational process, the content of which is determined by the Federal State Educational Standard of Higher Education, curricula, educational and methodological complexes.

In accordance with the Federal State Educational Standard of Higher Education and the requirements of the STCW 78 c Convention in the direction of training "Navigation on the sea routes", as a result of studying the disciplines "Marine English" and "Marine Technical English", the cadet must know the international Radio Regulations, IMO standard phrases for communicating in sea. He must be able to carry out measures to ensure the safety of the vessel, perform the duties of a watch mate, provide communication in English with coastal services in accordance with the requirements of international conventions (COLREGs, STCW, SOLAS, MARPOL etc.) [8]. The cadet must be able to conduct written, business communication and ship communication in English, perform the duties of a commanding officer in an international crew. In the process of implementing language education, a teacher is required to have a high degree of readiness to conduct a communicative lesson, to introduce modern teaching technologies, which will ensure conjugation in mastering speech and the system of the language being studied by subordinating work on studying language material to work on mastering speech skills, the formation of skills to understand foreign language speech.

At the Admiral F.F. Ushakov State Maritime University the Department of Foreign Languages has material, technical, legal, scientific, didactic, and human resources that contribute to the formation of the necessary competencies of graduates in the study of a professionally oriented foreign language. Each classroom is equipped with a TV and a computer with Internet access. There are two computer classes and a multimedia class.

Simulators represent a separate group of technical training aids. Compulsory simulator training of shipboard crew specialists is carried out on the basis of the implementation of three special resolutions adopted by the international conference on training, certification of seafarers and watchkeeping [9]. At the State Maritime University named after Admiral F. F. Ushakov to conduct integrated training sessions of three departments – "Navigation", in a specially equipped training room, a Navi Trainer Professional 5000 radar navigation simulator equipped with ECDIS Navi-Sailor 4000 is used, which structurally represents fifteen identical "navigation bridges" for training and a central computer with an instructor console.

A special place is given to the simulator in teaching a foreign language, in particular English, for working out production situations. It is especially necessary to train communication skills in a foreign language when developing ship piloting skills, during radiotelephone exchange with coast stations, in conversation with an agent and various port services, etc. Training of future navigators in a foreign language is carried out in all types of communicative activities – listening, speaking, reading, writing. Auditing occupies a special position – the first among equals, acting in these conditions as a specific type of speech activity and an important professional skill of navigators, without which it is impossible to ensure effective and high-quality communication of the vessel with external production facilities, and the absence of such jeopardizes the life safety of the vessel and crew. The formation of listening skills was previously carried out through the use of portable VHF radios in the classroom without reference to the real conditions of keeping a navigational watch, in isolation from other special disciplines, which was somewhat artificial in the situations simulated by a foreign language teacher. The students did not have the opportunity to apply the acquired skills of listening to foreign language speech, responding to received messages during practical classes in related disciplines. And as a result, graduates starting their career immediately after graduation faced the difficulty of combining knowledge in special disciplines with skills in a professionally oriented foreign language [10].

The need to find such a tool that would allow combining all the knowledge gained, facilitate their integration into practical activities, on the one hand, and greatly facilitate the adaptation of our graduates to the beginning of their career, on the other, has become obvious. The navigation simulator Navi Trainer Professional 5000 became such a tool.

The use of simulators in the educational process has recently become widespread, since only they make it possible to develop the skills necessary for an operating engineer. Simulation technique allows simulating situations that are as close to reality as possible, and its efficiency is usually very high.

A technology was developed and used in the study for teachers of three different academic disciplines to conduct an integrated training session, including the theory being studied, imitation of a practical professional situation, the use of a radar simulator as a technical means of training, and the establishment of pedagogical

feedback adequate to the formation of specific integrative professional skills.

The use of a foreign language when working on simulators helps to develop the skill of combined operator activity, to automatically use a foreign language [11].

Work on the simulator also makes it possible to get used to different voices, accents (with different dispatchers, the role of which is played by foreign language teachers), which is important for the perception of a foreign language.

The developed cycle of ten business games in English for a radar simulator is included in the work program of the 5th course in the discipline "Marine English" for cadets of the navigation faculty and covers educational material on the following topics: taking a pilot and sailing with a pilot on board; passing through narrows and channels; anchoring; mooring operations; towing operations; navigation warnings; weather forecast messages; distress messages, urgency and safety messages; rescue operations. It should be noted that the business game on the simulator was preceded by classroom classes, where lexical units, grammatical constructions characteristic of each topic were studied, as well as the corresponding sections of the Standard Navigation Dictionary-phrasebook and IMO Standard Phrases for Communication at Sea; various tasks aimed at developing listening skills were performed in the language laboratory; in the computer classes, the cadets were tested in the "Training" and "Testing" modes [12].

4 Conclusion

To create holistic, understandable ideas about reality and the formation of skills to function freely in it, we have developed a cycle of business games, including integrated training sessions of three departments in a specially equipped classroom. In the created training situations, the conditions of different profiles were integrated. This ensured its adequacy to the real professional situation, created conditions for establishing links between various subject areas of knowledge, between diverse components of the studied phenomena.

The information and educational environment can be used as a resource for the formation of various competencies, the development of creative thinking and, most importantly, the striving for continuous improvement.

The use of IEE allows ensuring the innovative nature of training, to show the activity and independence of cadets [13].

The rational use of modern technical means as a component of the information and educational environment for teaching foreign languages makes it possible to:

- to make up for the lack of a foreign language environment at all stages of learning a foreign language;
- to increase the motivation of students to learn a foreign language;
- to implement the important didactic principle of visibility in more full volume;
- to create better conditions for programming and control;
- to carry out training taking into account the individual typological capabilities of each student;
- to ensure the accelerated formation and development of auditory self-control skills;
- to perform many active types of exercises with all students at the same time, including speaking;
- maximize the use of analytical and simulation abilities of students, to fully mobilize their internal resources.

The use of information and communication technologies in the process of teaching a foreign language contributes to the implementation of professional and personal self-development of the future engineer-navigator [14].

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