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THE DEVELOPMENT OF BACHELORS' PROFESSIONAL COMPETENCES BY MEANS OF A FOREIGN LANGUAGE

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Abstract

At present, the requirements for professional, general cultural and especially foreign language training of future specialists are constantly increasing; therefore it is necessary to develop scientifically based approaches and methods for teaching. The article discusses the need for the formation of professional competencies of a technical university graduates and methods of their development. Herewith we give a brief description of the basic training manual for professional-oriented teaching of Chemical Engineering Bachelors in a foreign language. This training manual is intended for professional-oriented English language teaching of chemical students. The main purpose of the manual is the development and improvement of reading and translation skills in the specialty in order to obtain information on the basis of mastering general technical and terminological vocabulary, as well as the development of speaking and writing skills. The activity approach used in this training manual is aimed at the formation and development of professional competencies among students of chemical specialties. The variety of texts and their content simulate the conditions of a real information retrieval activity of a future chemical engineer. The work is considered in the structure of information and educational base for the formation and development of professional competencies while teaching students of chemical specialties foreign languages. The paper also analyzes interdisciplinary educational complexes in a given subject area.

Keywords: Educational complexes, information and educational base, interdisciplinary professional competences, vocational-oriented learning.

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1. Introduction

Taking into account the development trends of modern society, the system of higher vocational education makes evident the demand for highly qualified, sociable, creative, independent and determined specialists in the technical field, possessing mobility, competitiveness, ability to apply their knowledge and skills in constantly changing environment, the ones who have the capability for self-education. Innovative development of society leads to the need for making appropriate changes in the process of training specialists. The value and semantic priorities of vocational education in connection with globalization and the informatization of society nowadays are being revised. The social context of student learning activities is changing. The ability to learn and creativity become the most claimed qualities of graduates of technical universities (Stolyarenko, 2014). Today the strategic guidelines for the transformation of higher education must be linked to the full development of the creative potential of students.

Given the current trends in the development of society, the federal state educational standards for higher education of the third generation of the Federal Educational Standards 3 and 3+ were adopted. These pay great attention to the formation of students' professional competencies. And it is urgent and relevant. This innovative approach to teaching at a higher educational institution implies the formation of such competences among future specialists as the ability to apply knowledge, skills and personal qualities for successful professional activity in a certain subject area.

They should promote competitive viability of graduates and their social mobility. In order to successfully develop professional competencies of students, it is necessary to improve the educational process, while applying innovative technologies and other effective forms of education, changing the content of education to intensify the independent work of students, actively using elements of distance education in universities (Blinov, Vinenko, & Sergeev, 2013).

2. Problem Statement

So, what is the most effective way to form and develop the professional competencies of technical university students in terms of modernization of education? The means may be different - the use of problem-based learning methods in active language classes (active and interactive technologies); active participation of students in scientific conferences, forums and competitions.

To develop professional competences today is to develop a creative individuality, to form receptivity to technical innovations, the ability to adapt to a changing professional environment (Labzina, 2013).

The main stages of the formation of professional competencies are self-analysis, self-development planning (goals, objectives, solutions), self-manifestation, analysis, self-adjustment.

Justification of the set of professional competencies that must be formed in the process of teaching a foreign language - PC (F) - is the initial stage of developing a system of professional competencies formation among students of a technical university.

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3. Research Questions

To this end, we analyzed the composition and content of professional competencies represented in GEF-3 + in 15 areas of training for academic and applied bachelors in technical specialties, provided at the Samara State Technical University. During the analysis it was revealed that the number of professional competencies in the educational standards of training clusters for bachelors is different.

So, in the Bachelor standard of the specialty training 03.13.02 "Electric Power and Electrical Engineering" there are only 4 professional competencies, of the specialty 23.03.01 "Oil and Gas Business" - 15, and of the specialty 18.03.01 "Chemical Technology" - 23. Naturally, all educational standards contain the basic professional competence, which defines the goal and the expected result of the discipline "Foreign Language" included in the bachelor study program. Next, we give the definition of this competence and assign it the index PC (F) -B: readiness for communication in oral and written forms in the official language of the Russian Federation and in a foreign language to solve problems of professional activity.

It is obvious that in the process of mastering a foreign language, students can develop other professional competencies, due to the fact that a foreign language is a means of obtaining and using foreign scientific, technical and socio-economic information through intercultural and foreign-language communications with scientists and specialists from abroad. Furthermore, a foreign language is necessary when using the resources of the global Internet in the relevant areas of subject knowledge (Borisova, Azarov, & Kuzov, 2008).

We believe that responsibility for development of professional competence should be based on the following facts: first, the definition of "competence" should be clear and concise (Nesterenko & Ionesov, 2013). Secondly, it is obvious that the formation of professional competences in the process of teaching students a foreign language can be most successfully implemented through the development and use of interdisciplinary didactic complexes, namely, through the substantive integration of the "Foreign Language" discipline with academic disciplines of technical and socio-economic cycles.

In our case, the information and educational base for the formation of professional competencies among bachelors in technical fields includes relevant interdisciplinary didactic complexes that correlate with the basic discipline "Foreign Language", such as: "Russian language and culture of speech" (IDC-1), "Business communication and culture of speech" (IDC-2), "Bioorganic chemistry" (IDC-3), "Basics of pharmaceutical analysis" (IDC-4) and "Ecology" (IDC-5). They constitute the structure of the basic discipline, and are also its training modules, although they remain locally independent didactic components (Vlasova & Banartseva, 2015).

In the current circumstances, interdisciplinary integration has undoubtedly become one of the most important methodological foundations of educational processes. Interdisciplinary integration is also a logical basis for self-development of a young specialist. Interdisciplinary communication leads to the interaction of different subject areas in the training system. That is why this process is in demand today for the synthesis of knowledge, its integrated assimilation and application in practical professional activity and human life (Vlasova, 2013).

For example, the IDC-5 module “Ecology” includes the following educational elements: global environmental problems; basics of environmental law and professional responsibility for environmental

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compliance with standards and regulations; social institutions and organizations in the field of environmental safety.

4. Purpose of the Study

Interdisciplinary educational complexes are structurally and logically interconnected. It provides the continuity and consistency not only of the content of the modules, but also of the modes of their presentation to students, as well as the learning modalities.

The structure of the information and educational base for the formation of PC (F) includes the main blocks of information which form the basis of students 'professional competencies. The content of the university course of a Foreign Language has practical orientation and is based on interdisciplinary connections with the technical and socio- economic cycles disciplines.

Using the information and educational base for the formation of PC (F), students must master the lexical minimum required for work with professional literature and communion in a foreign language; basics of grammar and vocabulary of a foreign language for writings or speech in a foreign language on professional topics. Students should also be able to use a foreign language to express their thoughts and opinions in interpersonal and business communication, extract information from authentic texts, and possess communicative competence for solving social and communicative tasks in various fields of foreign-language activity.

Future engineers also need to be able to search for new information when working with educational, general scientific and special literature, to make abstracts and summaries of reports, to exchange information during oral and written contacts in situations of everyday and business communication.

5. Research Methods

The content of the training and methodology complex of the discipline "Foreign Language" for specialists in the field of chemical technology involves the use of background technical and sociocultural knowledge by students for mastering of a foreign language, and the linguistic communication skills that are formed in the process of its study give the opportunities for students to participate in learning and research activities. The discipline "Foreign Language" represents the basic stage in the general system of gradual preparation of students for professional communication in a foreign language and on the purpose, content and teaching methods are closely associated with other academic disciplines of the technical, economic and social cycle. The content of the IDC-1, IDC-2, IDC-3, IDC-4, IDC-5 interdisciplinary didactic complexes, considered by us earlier, is of great importance in the structure of the information and didactic base. The process of forming a PC (F) for students enrolled in the chemical and technological fields of undergraduate education is carried out with the help of the author's study guide "Chemistry in Engineering" (Banartseva & Vlasova, 2016).

In the developing of this textbook, the experience of teachers of the department of "Foreign Languages", who actively apply creative technologies in their teaching practice, was taken into account (Rozhnova & Simakova, 2013). The basic textbook "Chemistry in Engineering" is not just about

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translating typographic texts, but about creating completely new didactic tools. The development of the textbook is not an easy but creative work, requiring from the teacher not only the knowledge of a foreign language, but also certain knowledge in the field of special technical subjects. This textbook is based on authentic technical texts. It is intended for vocational-oriented English language training for students of chemical specialties. The purpose of the textbook is to improve the reading and translation skills in the specialty in order to obtain information on the basis of mastering general technical and terminological vocabulary, as well as the development of speaking and writing skills. The activity approach used in this textbook is aimed at the formation and development of professional competencies among students of chemical specialties. The textbook "Chemistry in Engineering" corresponds to the federal educational program in the English language. The texts used in the manual are taken from the Internet and are partially shortened and adapted by the authors. The variety of texts and their content simulate the conditions of a real information retrieval activity of a future chemical engineer.

The clear structure of the textbook includes 8 units, each of which is also structured and consists of 7 blocks: Before you read (pre-text exercises), Reading 1, Reading 2, Grammar, Speaking, Writing, Spoken English. In the pre-text exercises, a simple question is offered on the topic of the section in order to find out what information the students have in this field. This kind of speech exercises helps the students to understand the main text of Reading 1 and arouse their interest. Before reading the main text of the unit, students are invited to familiarize themselves with the frequency vocabulary on the topic, to find the words in the text and in the dictionary. The texts of Reading 2 are intended for search reading. The tasks offered in the Speaking and Reading blocks encourage students to express their own opinions. In the Grammar block, exercises are given to translate one of the grammar topics studied during the second year: participle, infinitive, gerund. Students' communication skills are developed in the Spoken English section. The appendix provides a brief grammatical reference and terminological dictionary. The material of the textbook sets the student to an active mode of activity, which contributes to the manifestation of creative abilities and creates prerequisites for successful mastering of increased amounts of information, and creative tasks in foreign language classes have not only educational value, but also help the teacher in working on the personality of the student and are educational in nature.

6. Findings

The development of professional creativity in the process of practical activity in the classes of a foreign language implies mastering the system-specific knowledge, skills and complex skills necessary to solve professional practical problems in a future career. Such opportunities of one of the courses help the teacher to take a fresh look at his task and the implementation of the educational process. Discussing problems and making decisions, students become active participants in the educational process, they receive and assimilate much more information directly related to the sphere of their future professional activity (Vlasova & Nechaeva, 2017).

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7. Conclusion

So, the system of forming professional competencies of technical university students in the process of their learning a foreign language, presented in the article, is at the stage of its gradual introduction into the educational process when preparing bachelors at the Faculty of Chemistry and Technology at Samara State Technical University. However, the expediency of its use is indicated by the results of experimental approbation of the developed information and didactic base and pedagogical technologies implemented in the process of forming a number of professional competencies of the PC (F). For example, the formative experiment conducted in the 2016/2017 academic year showed the following dynamics of growth of the level of formation of PC (F) - B competence among students of the experimental group of the 2nd course: at the beginning of the academic year, 86% of students had the formation of competence at the basic level at an elevated level – by 14%, at the end of the academic year, these ratios, respectively, became 73%: 27%. Thus, a pedagogical experiment indicates the need to use this information and didactic base for the successful and effective formation of professional competencies among students of a technical university.

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