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INFORMATION TECHNOLOGY SUPPORT
FOR THE DEVELOPMENT OF ENGINEERING STUDENTS' PROFESSIONAL
FOREIGN LANGUAGE COMPETENCE (THE REPUBLIC OF KAZAKHSTAN)

The process of modernization of the system of Kazakhstan education in the context of socio-economic changes in society includes the actualization of the problem of improving the quality of higher education. This article deals with the analysis of structure and content of professional foreign language competence in the system for training bachelors of engineering in the Republic of Kazakhstan. Information technology support, including multilingual (English-Russian-Kazakh) electronic training courses was developed and implemented. The effectiveness of these teaching aids was proved experimentally in the development of professional foreign language competence of future engineering bachelors at S. Toraighyrov Pavlodar State University. Based on the analysis of literature, it was concluded that the structure of the concept of "professional foreign language competence" includes three competencies: linguistic, communicative and personal, the content of which is determined by professional competencies. With the effective mastering of the content of professional foreign language competencies, the future bachelor of a technical university formed the ability and readiness to carry out interaction in a professionally oriented situation of communication with specialists of other countries in conditions of international mobility and integration. On the basis of the foregoing, it was concluded that professional foreign language competence is a qualitative characteristic of the future bachelor's personality, which includes a set of scientific and theoretical knowledge, practical skills and stable motivation that provide him with the opportunity for successful foreign-language communication in professional activities.

Key words: bachelor of engineering, professional foreign language competence, information technology support, e-learning course.

Статтю подано мовою оригіналу

In the era of integration of domestic education in the international educational space, mobility of specialists, globalization of engineering activities, Kazakhstan's demand for competitive specialists is growing. Involving Kazakh universities in the Bologna reforms implies academic and professional recognition of domestic diplomas in the European space, therefore a high level of competence in a foreign language is necessary not only for students-philologists, but also for future bachelors of technical profile. In this regard, the quality of higher education is characterized not only by the amount of knowledge in the specialty, but also by the ability of future graduates to communicate with specialists of other countries speaking another language.

The importance of this provision is noted in the State Program for the Development of Education in the Republic of Kazakhstan for 2011–2020 and in the requirements of the State educational standards of higher education for the training of qualified specialists capable to continuing education and conducting professional activities in a foreign environment [1, p. 35; 2, p. 42].

In order for a graduate of a technical university to be ready for international cooperation in the professional sphere, he must have a foreign language competence. In connection with this, the problem arises of the preparation of future bachelors of technical specialties with professional foreign language competence. In the context of the development of information technologies, the problem of developing the professional and foreign language competence of students as future representatives of the information society becomes particularly important.

The state educational standard of higher education in the Republic of Kazakhstan requires the consideration of professional specifics in the teaching of a foreign language, its focus on the implementation of the tasks of the professional activity of future bachelors. Nevertheless, language training, taking into account the professional orientation, is still unsatisfactory, and the level of vocational and foreign language competence of graduates is low, which does not meet the modern requirements of the society and the labor market, as evidenced by the results of studies of the state of foreign language teaching in non-linguistic universities, data from production, an acute shortage of specialists who hold a certain register of foreign language knowledge necessary for professional communication.

The main reasons that determine the insufficiently high quality of teaching a foreign language, taking into account the professional specifics in a technical university, are not only a small number of hours allocated for the study of a foreign language, the lack of special training of foreign language teachers for technical faculties of universities, low level of language education in secondary schools, but also the insufficiently developed methodology of teaching a foreign language in integrative connection with vocational training based on modern information and educational technologies.

The structure of the course "Foreign Language" is realized in the framework of communicative, personality-centered, professional activity, competence-based and contextual approaches.

Communicative approach implies the mastery of the language as a means of communication. In accordance with the communicative approach, language teaching should take into account the specifics of real communication, and the learning process should be based on the model of real communication, since the possession of the language system (knowledge of grammar and vocabulary) is insufficient for effective use of the language for communication purposes.

The personality-centered approach is based on taking into account the individual characteristics of students, who are viewed as individuals with their own characteristics, propensities and interests.

Professional activity approach implies the development of a foreign professional communicative competence that includes knowledge, skills and skills in the specialty and the possession of foreign vocational terminology for the purpose of its further practical and theoretical use in professional activities.

Professional competence (PC) factors that determine the content and development of this competence should be presented: professional culture of the future bachelor; the subject of the profession of the student; goals and objectives, the content and structure, the specifics of the objects of professional activity; requirements for the future bachelor of technical specialties; requirements to forms, methods, means of professional activity, to its technologies and results, refracted in foreign materials.

Based on the analysis of pedagogical literature, we concluded that professional competence should be described in all its structural components:

– name of the competence;

– the circle of real objects of reality;

– socio-practical significance (for which it is necessary);

– personal significance for the learner;

– the amount of knowledge, skills, skills, methods of activities related to this competence;

– characterization of the minimum necessary experience of the activity of the trainee in the field of competence;

– indicators to verify the formation of competence;

– description of actions and expected products at each stage of training.

Taking into consideration the component nature of the PC, we determined its content, which includes:

– motivation for early professionalization and expansion of professional experience;

– knowledge of professional thesaurus in native and foreign languages; skills and skills of using the thesaurus of professional concepts, concepts, speech and non-speech behavior in specific professional situations (the notion of international professional communication), understanding and producing a foreign language text of a professional profile;

– emotions, feelings, behavioral reactions, which include respect for the values of professional culture.

The main goal in teaching a foreign language is to develop the student's ability to participate in real communicative activities and use communication strategies to improve the level of language proficiency.

Professional activity by means of a foreign language is a complex integrated process aimed at developing professional and foreign language competence based on the actualization of professional competencies.

Linguistic competence consists of linguistic, speech, discursive-strategic and linguistic-professional competencies.

Communicative competence consists of socio-cultural, informational and socio-pragmatic competences.

Personal competence consists of personal (individual) competence.

The student's professional foreign language competence is a complex integrative whole that provides competent professional communication in the language of the specialty in the conditions of international communication.

On the basis of the literature on this issue, the monograph "Common European Competencies in Knowledge of Foreign Language: Teaching, Studying, Evaluating" and the Requirements of the State Educational Standards of Higher Professional Education of the Republic of Kazakhstan it is possible to present the structure and content of the students' professional and foreign language competence in the following table 1 [3, p. 12]:

Such a presentation of PFLC as an actual competence of a university student in a system of integral professional competence allows us to consider PFLC as a personal quality consisting of the following components: knowledge, skills, experience – a cognitive-activity component; value-semantic relations, the regulation of the process and the result of the manifestation of competence – the motivational-value component; readiness to display competence is a professional and communicative component. The professional foreign language competence (PFLC) is interpreted in our research as a professionally significant integrative quality of the student, combining the motivational-value, cognitive-activity and professional-communicative components, ensuring the unity of general, professional, linguistic and communicative skills and determining the subject's ability to join in professional activity and orient in the modern intercultural space.

As a result of the formation of PFLC, the following types of the students' professional and foreign language competences are developing:

– skills and communication skills in the domestic sphere;

– skills and skills of reading texts of professional and regional character;

– the ability to listen to the speech of the teacher and fellow students of a general nature;

– skills and writing skills;

– mastery of the vocabulary of neutral scientific style;

– skills and communication skills in the professional sphere;

– skills and skills of public speech;

– skills and abilities of owning information technology tools;

– skills and abilities of analytical reading of texts of a professional nature;

– development of the skills of reading authentic information;

– the ability to listen to texts of a professional nature;

Table 1

The structure and content of the PFLC of future engineering bachelors

Components	Structure	Contents
Knowledge	Linguistic competence 1. Language competence	1. Knowledge of the lexical and terminological minimum in the volume of 3,000 units (differentiation of vocabulary in terms of application, free and stable phrases, phraseological units, word-formation methods); 2. Knowledge of phonetic and grammatical material necessary for successful communication; 3. General idea of everyday, literary, official-business, scientific and artistic styles.
Skills, experience	2. Speech competence 3.Discussive-strategic competence 4. Lingvo-professional competence: a) objective, b) terminological, c) research, d) project subcompetency.	1. Receptive communicative skills: 1.1. Audirovanie: understanding of foreign speech in domestic and professional spheres; 1.2 Reading: reading and understanding of simple pragmatic texts on a wide and narrow specialty profile, using different reading strategies / types; 2.Productive communication skills: 2.1 Speaking: Dialogue: – participation in written and oral professional communication; Monologic speech: – possession of monologic speech (public speech: oral communication, report); – conducting all kinds of dialogue on the basis of an expanded theme in various situations of professionally centered communication; Political speech: – conducting a polylogue, including in the form of discussion, with observance of the norms of speech etiquette. 2.2 Letter: – write annotations, abstracts, abstracts, messages, private and business letters, biography. – express your own opinion / judgment; – draw up abstracts or a detailed plan of speech; 3. Translation: – development of professionally-oriented skills of translation of texts from foreign into Kazakh and Russian.
Readiness form anifestation competence	Communicative competence 1. Sociocultural competence 2. Information competence 3. Socially-pragmatic competence	– mastering the culture of professional communication, the ability to work in cooperation, to build their speech and non-verbal behavior adequately socio-cultural and professional specifics of the country of the studied language; observe the rules of speech etiquette. – ability to operate with information technology tools; – the need to understand foreign texts in the professional sphere of communication; – interest in reading and understanding texts on the specialty; – to argue in connection with the subjects of interest, problems, describe events, state facts. – interest in writing annotations, abstracts, abstracts, messages, private and business letters.
Value-semantic relations, regulation of the process and the result of the manifestation of competenc	Personal competence 1. Personal (individual) competence	– awareness of oneself as a subject of international cooperation in the professional sphere; – awareness of the interdependence and integrity of the world, the need for international cooperation in solving global, including professional, problems of mankind; – the desire to participate in written and oral professional communication (to enter and conduct a dialogue, while observing the rules of etiquette, to make an oral report, a report on a professional topic); – tolerant attitude to the manifestations of other specific foreign-speaking professional communities.

– development of skills and skills of abstracting;
– initial skills of written analysis of texts;
– proficiency in professional vocabulary;
– skills and abilities of applying a foreign text for the purpose of professional communication;
– skills and skills of reading authentic texts and their analysis;
– skills and skills of listening to authentic information;
– skills and skills of business correspondence;
– free use of professional vocabulary.

The implementation of the competence approach in the system of foreign language technical education requires a change in the traditional educational process, since for the formation of competencies it is necessary to create special learning situations that play the role of models of real life situations, as well as effective control over the trainee's activity when working with these models.

The main approach adopted in our work is that these situations can be created in special learning environments using modern information technologies.

By information technologies we mean didactic software that presents educational content in an interactive form with the help of various types of information, the integrated use of which contributes to the effectiveness of cognitive processes.

The introduction of the means of information and technological provision in the educational process: e-learning courses in English, the electronic textbook "English for Specific Purposes", the multimedia training course "Four Basic Skills" made it possible not only to improve the effectiveness of teaching, but also to change the picture of one's personal interest and independence of students [4–6].

The pre-experimental and post-experimental testing for all types of speech activity (listening, reading, monologue, dialogue, polylogue, written speech and grammar) was conducted at the ascertaining and controlling stages of the experiment to reveal the formation of PFLC of future engineering bachelors. (See Table 2) Comparison of the results of the experimental groups was carried out with the results of control groups, where the teaching was conducted without the use of information technology.

Table 2

Changes in the development of PFLC by types of speech activitybefore and after the experiment

Types of Speech Activity /group	Control. group		Experiment. groups	
	before the experiment	after experiment	before the experiment	after experiment
	%	%	%	%
listening	56,84	61,76	57,13	76,38
grammar	56,17	65,29	60,44	77,28
reading, vocabulary	65,2	65,7	63,4	73,83
monologue	52,2	61,23	53,15	70,25
dialogue	49,8	58,2	50,23	69,31
polylog	48,75	56,75	49,30	68,3
writing	46,7	56,15	47,5	66,55
total:	375,7	425,08	381,2	501,9
average:	53,67	60,73	54,45	71,7

In the Table 3 we see that there have been significant changes in the students of the experimental groups (54,45 and 71,7). The results were processed by the Student's criterion. In the experimental groups: tEmp = 6.3. The empirical value of t (6.3) obtained is in the zone of significance.

Table 3

Dynamics of changes on the levels of the development of students' PFLC based on the results of experimental work (expert evaluation)

Levels of PFLC / group	A1		A2		B1		B2		Sum	
	%	Absol. number)%	%	Absol. number)%	%	Absol. number)%	%	Absol. number)%	%	Absol. number)%
EG (pre-exp. test)	53	19	28	10	17	6	2	1	100	36
EG (post-exp.test)	2	1	33	13	43	18	22	9	100	41
KG (pre-exp. test)	53	19	30	11	15	5	2	1	100	36
KG (post-exp. test)	39	16	36	14	21	9	4	2	100	41
Total	37	14	32	12	24	10	8	3		

EG – experimental groups
KG – control groups

According to the expert assessment, a comparative analysis of the effectiveness of the use of information technology and traditional means showed that the number of students in the experimental groups with the reproductive level of A1 decreased by 51%, of the 19 students there was only one, the number of students with empirical A2 increased by 5% – 3 students , and with a heuristic level of B1 – 26% – 12 students, the number of students with a search and research level of B2 increased by 20% – 8 students. In the control groups, the number of students with A1 level decreased by 14% –3 students, with A2 level increased by 6%–3 students, B1 level – 6% – 4 students, B2 level –2% – 1 student. The forming stage of the experiment presented the overall effectiveness of information and technological support in the process of teaching a foreign language.

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Каббасова А. Т., Куанишева Б. Т., Раісова А. Б. Інформаційно-технологічне забезпечення розвитку професійно-іншомовної компетентності студентів-бакалаврів техніки і технологій Республіки Казахстан

Процес модернізації системи казахстанської освіти в умовах соціально-економічних змін у суспільстві спричинює актуалізацію проблеми підвищення якості вищої освіти. У цій статті розглядаються структура і зміст професійної іншомовної компетентності в системі підготовки бакалаврів техніки і технологій Республіки Казахстан; розроблено і запроваджено інформаційно-технологічне забезпечення, що містить мультимовні (англо-російсько-казахські) електронні навчальні курси; експериментально доведено його ефективність у розвитку професійної іншомовної компетентності майбутніх бакалаврів техніки і технологій на базі ПГУ імені С. Торайгирова. На основі аналізу літератури ми дійшли висновку, що структура поняття «професійна іншомовна компетентність» складається з трьох компетентностей: лінгвістичної, комунікативної і особистісної, зміст яких визначається професійними іншомовними компетенціями. За ефективного оволодіння змістом професійних іншомовних компетенцій у майбутнього бакалавра технічного ВНЗ формується здатність і готовність до взаємодії в професійно спрямованій ситуації спілкування із фахівцями інших країн в умовах міжнародної мобільності й інтеграції. На основі вище викладеного ми дійшли висновку, що професійна іншомовна компетентність – це якісна характеристика особистості майбутнього бакалавра, що охоплює сукупність науково-теоретичних знань, практичних умінь та навиків, стійкої мотивації, які уможливлять для нього успішне іншомовне спілкування у професійній діяльності.

Ключові слова: *бакалавр техніки і технологій, професійна іншомовна компетентність, інформаційно-технологічне забезпечення, електронний навчальний курс.*

Каббасова А. Т., Куанишева Б. Т., Раисова А. Б. Информационно-технологическое обеспечение развития профессионально-иноязычной компетентности студентов-бакалавров техники и технологий Республики Казахстан

Процесс модернизации системы казахстанского образования в условиях социально-экономических изменений в обществе включает в себя актуализацию проблемы повышения качества высшего образования. В данной статье рассматриваются структура и содержание профессионально-иноязычной компетентности в системе подготовки бакалавров техники и технологий Республики Казахстан; разработано и внедрено информационно-технологическое обеспечение, включающее мультиязычные (англо-русско-казахские) электронные учебные курсы; экспериментально доказано его эффективность в развитии профессионально-иноязычной компетентности будущих бакалавров техники и технологий на базе ПГУ им. С. Торайгырова. На основе анализа литературы был сделан вывод, что в структуру понятия «профессионально-иноязычная компетентность» входят три компетентности: лингвистическая, коммуникативная и личностная, содержание которых определяется профессионально-иноязычными компетенциями. При эффективном овладении содержанием профессионально-иноязычных компетенций у будущего бакалавра технического вуза формируется способность и готовность к взаимодействию в профессионально направленной ситуации общения со специалистами других стран в условиях международной мобильности и интеграции. На основании вышеизложенного был сделано заключение, что профессионально-иноязычная компетентность – это качественная характеристика личности будущего бакалавра, включающая совокупность научно-теоретических знаний, практических умений и навыков, устойчивой мотивации, обеспечивающих ему возможность успешного иноязычного общения в профессиональной деятельности.

Ключевые слова: *бакалавр техники и технологий, профессионально-иноязычная компетентность, информационно-технологическое обеспечение, электронный учебный курс.*