

# ИНФОРМАТИКА. ИНФОРМАТИКАНЫ ОҚЫТУ ӘДІСТЕМЕСІ. БІЛІМ БЕРУДІ АҚПАРАТТАНДЫРУ ИНФОРМАТИКА. МЕТОДИКА ПРЕПОДАВАНИЯ ИНФОРМАТИКИ. ИНФОРМАТИЗАЦИЯ ОБРАЗОВАНИЯ

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## THE FORMATION OF PROFESSIONALLY-ORIENTED COMPETENCE OF STUDENTS OF NON-LINGUISTIC SPECIALTIES BASED ON WEB 2.0 TECHNOLOGY

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### *Abstract*

Professionally-oriented competence is one of the essential components of students' professional competence. Today, it is a great demand for specialists to sufficiently owning a foreign language to implement the professional activity in a foreign-language sphere. In this context, special attention should be paid for the formation of this competence of students of non-linguistic specialties. The research focuses on considering the effective ways of forming of professionally-oriented competence of students of non-linguistic specialties. One of the possible ways of managing with it is the usage of modern digital technologies, including Web 2.0 in teaching Professionally-oriented foreign language course. The research methods consisted of relevant literature review on this topic and a survey.

The research findings present that students highly appreciate using digital technologies while studying the course and confirm its practice-oriented nature. This research recommends effective use of digital technologies for successfully forming of professionally-oriented competence of students of non-linguistic specialties.

**Keywords:** professionally-oriented competence, professional competence, teaching Professionally-oriented foreign language for students of non-linguistic specialties, Web 2.0 technology.

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## WEB 2.0 ТЕХНОЛОГИЯСЫ НЕГІЗІНДЕ ТІЛДІК ЕМЕС МАМАНДЫҚТАР СТУДЕНТТЕРІНІҢ КӘСІБИ-БАҒЫТТАЛҒАН ҚҰЗЫРЕТТІЛІГІН ҚАЛЫПТАСТЫРУ

Кәсіби-бағытталған құзыреттілік студенттердің кәсіби құзыреттілігінің маңызды құраушыларының бірі болып табылады. Қазіргі таңда, кәсіби қызметін шет тілінде жүзеге асыру үшін шет тілін жеткілікті дәрежеде білетін мамандарға сұраныс жоғары. Осы тұрғыда тілдік емес мамандық студенттерінің осындай құзыреттіліктерін қалыптастыруға ерекше назар аударылуы керек. Зерттеу тілдік емес мамандық студенттерінің кәсіби-бағытталған құзыреттілігін қалыптастырудың тиімді жолдарын қарастыруға бағытталған. Осындай жолдардың бірі Кәсіби-бағытталған шет тілі оқу курсын оқыту барысында заманауи сандық технологияларды, оның ішінде Web 2.0 технологиясын қолдану болып табылады. Зерттеу әдістерін зерттеу тақырыбы бойынша өзекті әдебиеттерге шолу және сауалнама құрайды.

Зерттеу нәтижелері студенттердің курсты оқу барысында сандық технологиялардың қолданылуын өте жоғары бағалайтындықтарын және курстың тәжірибеге-бағытталғандығын көрсетті. Зерттеу тілдік емес студенттердің кәсіби-бағытталған құзыреттілігін табысты қалыптастыру үшін сандық технологияларды тиімді қолдануды ұсынады.

**Түйін сөздер:** кәсіби-бағытталған құзыреттілік, кәсіби құзыреттілік, тілдік емес мамандық студенттеріне Кәсіби-бағытталған шет тілін оқыту, Web 2.0 технологиясы.

Аннотация

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## ФОРМИРОВАНИЕ ПРОФЕССИОНАЛЬНО-ОРИЕНТИРОВАННОЙ КОМПЕТЕНЦИИ СТУДЕНТОВ НЕЯЗЫКОВЫХ СПЕЦИАЛЬНОСТЕЙ НА ОСНОВЕ ТЕХНОЛОГИИ WEB 2.0

Профессионально-ориентированная компетенция является одной из важнейших компонентов профессиональной компетентности студентов. На сегодняшний день существует большая потребность в специалистах, владеющих иностранным языком в достаточной степени для осуществления профессиональной деятельности в иноязычной сфере. В связи с этим особое внимание следует уделять формированию данной компетенции у студентов неязыковых специальностей. Основное внимание в исследовании уделяется рассмотрению эффективных способов формирования профессионально-ориентированной компетенции у студентов неязыковых специальностей. Одним из возможных способов представляется использование современных цифровых технологий, в том числе технологии Web 2.0, при обучении курсу Профессионально-ориентированный иностранный язык. Методы исследования включают обзор соответствующей литературы по данной теме и опрос.

Результаты исследования показывают, что студенты высоко оценивают использование цифровых технологий при изучении курса, и подтверждают его практико-ориентированный характер. В исследовании рекомендуется эффективное использование цифровых технологий для успешного формирования профессионально-ориентированной компетенции студентов неязыковых специальностей.

**Ключевые слова:** профессионально-ориентированная компетенция, профессиональная компетентность, обучение студентов неязыковых специальностей профессионально-ориентированному иностранному языку, технология Web 2.0.

### 1. Introduction

Nowadays, a transition from a knowledge paradigm to a competence-based approach is considered to be one of the priority areas of the educational policy of the Republic of Kazakhstan. The main idea of the competence-based approach in education is to develop future specialists' key competencies which form their professional competence [1]. In turn, the professional competence of specialists contributes to their success and competitiveness in the modern labour market. Specialists' professional competence reflects the readiness to function within the professional activity in accordance with established norms, standards and requirements, as well as an ability to adapt to rapidly changing working conditions caused by the development of modern digital technologies and globalization processes.

In the context of globalization of education, there is a great demand for specialists sufficiently owning a foreign language to implement the professional activity in a foreign-language sphere. So, today, the issue of forming future specialists' professionally-oriented competence is considered to be relevant. For these purposes, the Professionally-oriented foreign language has been taught since 2013 as a mandatory discipline for all specialties of Kazakhstani higher education institutions (HEIs) [2]. The discipline focuses on acquiring students with the content of the subject through a foreign language, as well as on giving students opportunities to improve their foreign language knowledge through professionally-oriented learning materials. Here, special attention should be paid for students of non-linguistic professions, whose curriculum does not provide a sufficient amount of hours for studying linguistic disciplines, including the English language. Apart from this challenge, there are also other ones, as well as a lack of educators with both subject and English language knowledge, professionally-oriented teaching guides in English, efficient teaching approaches, etc. [3]. These existing problems need exact solutions, since they straightly affect the formation of students' professional competence. So, there is a need for searching for more effective ways of forming of professionally-oriented competence of non-linguistic specialties' students. The usage of modern digital technologies, including Web 2.0 technology in teaching the Professionally-oriented foreign language, can be considered as one of the possible ways of managing the current situation.

### 2. Literature review

The need for the formation of professionally-oriented competence of students of non-linguistic specialties has been considered by many researchers. The analysis of foreign and domestic literature regarding to forming of future specialists' professionally-oriented competence shows that there is no special discipline like Professionally-oriented foreign language in the educational programs of many foreign countries. For example, in Russia, the issue of training students to be able to conduct their future professional activity in a foreign-language environment is covered within the framework of teaching Foreign Language discipline [4,5].

Unlike Russia, in Kazakhstan, Foreign Language discipline is considered to be a prerequisite for teaching Professionally-oriented foreign language course for all specialties of HEIs.

Kazakhstani researchers note the importance of teaching Professionally-oriented foreign language as a separate discipline, since it allows concentrating more to professional orientation of a certain specialty. In addition, the researchers highlight that the traditional approach to teaching this discipline does not work properly and cannot meet the modern requirements of the society and the government.

As it is stated in [6], it is proposed to develop students' communicative competence in Professionally-oriented foreign language class through a communicative method. By the communicative method, the authors indicate the way of developing the learners' understanding and mastering a foreign language, as well as their speaking skills. The researchers pay more attention to improving the learners' speaking skills as they consider them dominant. This is explained by the fact that in most cases students face difficulties to speak a foreign language in spite of being good at grammar and having the necessary vocabulary to do it. In order to show how this method works the researchers conducted an experiment with Transport and transport techniques and technology specialty students. During their investigation, researchers used professionally-oriented materials, which they divided into three categories: text-based, task-based, and authentic ones. At the end of the investigation, the students participated in a survey aimed to define the role of the communicative method in developing the learners' communicative competence. Despite the fact that the survey results showed an improvement in mastering students' basic terms, concepts, and vocabulary related to their future profession, it was defined that the communicative method by itself is not enough to develop students' communicative competence.

Another group of researchers [7] highlights the essence of the usage of a model of professionally-oriented foreign language teaching of non-linguistic specialties' students. According to the proposed model, it is recommended to carry out an educational process using active teaching methods such as professionally-oriented role-playing games, brainstorming, and methods of projects. As organizational forms of teaching the discipline, the researchers emphasize classroom lessons, as well as students' obligatory independent works. They state that the proposed model contributes to the formation of three criteria. They are students' readiness for professional verbal interaction and communication, readiness for creative professional activity, and mastering of professionally-oriented foreign language, in other words, the professionally-oriented competence. The effectiveness of the proposed model of teaching professionally-oriented foreign language for non-linguistic specialties' students has been proved by a pedagogical experiment. The experiment has been conducted with the participation of four groups: two experimental and two control ones. The experiment has been based on a questionnaire, group survey methods, teacher observation, and an interview. These methods allowed identifying four levels of formation of students' professionally-oriented competence: critical, low, medium, and high. By comparing the results of before and after experiment procedures the researchers have identified the improvements in the formation of non-linguistic students' professionally-oriented competence, which, in turn, has shown the effectiveness of the proposed model.

In spite of the fact, that considered two research results present the effectiveness of scientists' studies, the proposed approaches to forming of professionally-oriented competence of students of non-linguistic specialties cannot meet the current requirements of the society and government. In the context of a digitalization of education, it is required to take into consideration the didactic capabilities of digital technologies, including Web 2.0 services, as well as interactive methods and organizational forms of teaching. Nowadays, a student-centered approach to teaching is more valuable. It is important to involve students in real professional-like activities by means of interactive teaching methods and organizational forms such as flipped classroom technology, brainstorming, professionally-oriented role-playing games, seminars/webinars, etc.

### **3. Research methods**

The study used a survey method for gathering data by questioning students of non-linguistic specialty of University in Almaty, Kazakhstan. The survey was conducted with the participation of full-time 2-year students of 5B012000 – Vocational Education specialty, who had finished studying the Professionally-oriented foreign language course. The total number of respondents is 54: 36 females and 18 males. The study language is Kazakh. The choice of the survey method is associated with its popularity and advantages over other research methods. According to Jackson [8], the method is convenient to use, since it saves time, makes it possible to collect a lot of information in a short period of time; also it does not require financial expenses. The survey was aimed to identify students' opinions, attitudes regarding studying the Professionally-oriented foreign language course and it consisted of 10 different types of questions. Question

types ranged from simple «Yes/No» question to «Multiple choice», «Scale», «Ranking», «Express your dis/agreement», and «Open-ended» questions.

Scaling questions were designed by Likert scale, which is considered to be universal and commonly used method. It is mainly used to measure respondents' attitude by providing a range of responses to a given question or statement [9]. The survey contained questionnaire items for identifying students' attitudes to working forms, communication methods, digital tools, satisfaction or dissatisfaction, agreement or disagreement levels regarding classroom procedures, troubles met during studying the course, and so on.

It should be noted that the survey was fully anonymous and organized online via Google Forms. The respondents could choose how to answer: using their personal computers, laptops, tablets, or smartphones.

#### 4. Research results and discussion

The results of the survey provide us with some relevant data. According to the respondents' answers to the questionnaire, most of them prefer working in a small group and pairs, as well as individually. At the same time, 100 percent of respondents' answers were positive regarding establishing collaboration in the classroom.

The survey findings confirmed a lack of books, journals, manuals on the Professionally-oriented foreign language. That is why students have to browse the web (figure 1). There is no doubt that they can find a huge amount of information from the Internet, but at the same time, we should remember that we cannot always rely on everything posted on the web.

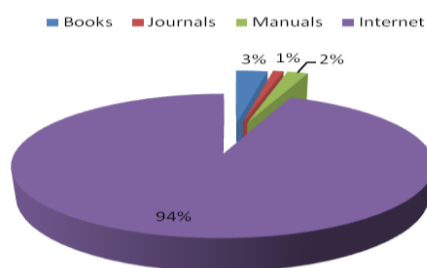


Figure 1. The ratio of the use of different types of sources

The survey contained several Linker scale questions. One of these questions was focused on identifying students' dis/agreement (1-3) regarding the eight statements (S1-S8) (see Table 1).

Table 1. Linker scale question

Please, rate your agreement with the below given statements:	Disagree	Neither agree or disagree	Agree
	1	2	3
<i>I found the learning material interesting and useful.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>It was difficult to understand the learning material since it was in English.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Acquaintance with the learning material before classroom was helpful.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Regular organized brainstorming, role playing activities helped to develop our communication skills.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Doing classroom assignments via a Smartphone was inconvenient.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The course was more practice-oriented rather than theory.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Sometimes it was difficult to understand the teacher's speech without translation into Kazakh.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The course was well organized due to appropriate using digital technologies.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As a result of processing the question, a summary table containing 54 respondents' answers was designed (see Table 2).

Table 2. A summary table of respondents' answers

Student	S1	S2	S3	S4	S5	S6	S7	S8	Total points
1	3	1	2	3	3	3	1	3	19
2	2	1	2	3	2	1	1	2	14
3	3	3	3	3	1	2	1	3	19
...	...	...	...	...	...	...	...	...	...
17	3	2	3	3	3	2	2	3	21
18	3	1	3	3	1	3	3	3	20
Sum:	44	32	46	43	35	42	28	47	317

Then, a contingency table for each statement was designed (see Table 3).

Table 3. A contingency table for S1

Student	Total points, $S_0$	Points for S1	Difference, $S_0-S_b$	Rank, $S_b$	Difference Rank, $S_0-S_b$	Difference of Ranks	Squared difference of ranks, $d^2$
1	19	3	9	1	13	-12	144
2	14	2	12	13	9	4	16
3	19	3	11	1	11	-10	100
...	...	...	...	...	...	...	...
17	21	3	10	1	12	-11	121
18	20	3	13	13	6	7	49
Sum:	317	44					898

After designing a contingency table for each statement Spearman correlation coefficients ( $r_s$ ) for all statements were calculated using the below given formula (see Table 4):

$$r_s = 1 - \frac{6 \sum d^2}{n(n^2-1)},$$

Table 4. Values of Spearman correlation coefficients ( $r_s$ ) for S1-S8

Statements	Coefficient, $r_s$
S1 – I found the learning material interesting and useful.	0,25
S2 – It was difficult to understand the learning material since it was in English.	0,01
S3 – Acquaintance with the learning material before classroom was helpful.	0,27
S4 – Regular organized brainstorming, role playing activities helped to develop our communication skills.	0,18
S5 – Doing classroom assignments via a Smartphone was inconvenient.	0,03
S6 – The course was more practice-oriented rather than theory.	0,37
S7 – Sometimes it was difficult to understand the teacher's speech without translation into Kazakh.	0,28
S8 – The course was well organized due to appropriate using digital technologies.	0,38

Table 4 indicates a strong relationship for S8 ( $r_s = 0,38$ ), as well as for S6 ( $r_s = 0,37$ ). It means that students highly appreciate using digital technologies while studying the Professionally-oriented foreign language course and confirm its practice-oriented nature. In the same way, other Linker scale questions from the survey were also processed. It should be noted that 2 or 3 respondents tended to choose the same option for all statements of the Linker scale questions. Some respondents even skipped open-ended questions. That is why we cannot exclude that some respondents did not take the survey seriously.

## 5. Conclusion

An effective use of means of digital technology like Internet services of the second generation in teaching the Professionally-oriented foreign language contributes to the formation of professionally-oriented competence of students. The professionally-oriented competence as an integral part of future specialist's

professional competence plays an important role. Nowadays, specialists who can carry out their professional activities in a foreign-language sphere are highly appreciated by potential employers. So, it is required to pay more attention to the formation of the professionally-oriented competence of future specialists, especially students of non-linguistic professions.

The research considers one of the possible ways of forming students' professionally-oriented competence on the example of 5B012000 – Vocational Education specialty by Web 2.0 tools. In order to gather some valuable information about students' thoughts, points of view related to the Professionally-oriented foreign language course they participated in the survey. According to the survey findings, students highly valued the usage of digital technology, by noting the ease of using them, a wide distribution, as well as their capabilities for improving their reading, writing, speaking, and listening skills in a foreign language. So, it is recommended to take advantage of modern digital tools to form students' professionally-oriented competence. The limitations of this study are connected with the nature of the survey method, which can include a lack of serious attitude to the given questions, dishonesty, some difficulties with understanding the meanings of questions, etc. In the case of COVID-19 we have found online survey as the most appropriate research method. It is believed that this study will stimulate effective use of didactic capabilities of Web 2.0 technology means in the formation of professionally-oriented competence of students of non-linguistic specialties.

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