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Implementation and approbation of the convergent model of professional foreign language competence in university conditions

The article discusses the theoretical and practical aspects of implementing a convergent model of professional foreign language competence into the educational process at a university, which involves integrating informal education into the institutional educational environment. Based on current research, the authors justify the use of a convergent approach to foreign language training for future specialists as a means of creating a flexible and adaptive educational system that combines the best aspects of both learning formats. The key components of the model were presented, its testing methods were outlined, and the results of its implementation were analyzed. The significance of using the convergent approach to develop foreign language competence in students was substantiated. The aim of this article is to present the results of implementing and testing the convergent model of professional foreign language competence at a university, as well as to analyze its effectiveness. To achieve this goal, the following tasks were formulated: 1) to describe the theoretical foundations of the convergent approach in foreign language teaching; 2) to present a model of professional foreign language competence based on the convergence of various methods; 3) to test the model and assess its effectiveness. As a result of the study, the conclusion was made that the implementation of the convergent model of professional foreign language competence at the university contributes to more effective language acquisition, increased student motivation, and the integration of various methods into the educational process.

Keywords: convergence, professional foreign language competence, convergent model, pedagogical innovations, formal education, informal education, informal foreign language education.

Introduction

Modern requirements to the training of specialists under globalization asserts high demands on the level of foreign language proficiency. However, Kazakhstan occupies a weak position in the ranking of countries in terms of English language proficiency [1]. In this regard, the task of the development and implementation of innovative approaches and teaching methods aimed at improving students' professional foreign language competence remains relevant. The analysis of concepts, theories and scientific provisions leads to the conclusion that professional foreign language training is at the intersection of educational, cultural and technological trends.

One of the promising directions is the convergent approach, which involves the integration of formal and informal education [2]. This approach contributes to the creation of a flexible and adaptive educational system combining the best aspects of both learning formats. This approach identifies the key aspects and challenges facing modern foreign language education.

The basis of professional foreign language training is not only the teaching of a foreign language, but also the development of the ability to use it in professional activities. This requires a comprehensive approach including linguistic competence, cultural awareness, intercultural communicative competence and professional knowledge. The convergence of formal and informal education provides a variety of ways to achieve these goals: formal education guarantees a standardized level of knowledge, while informal education promotes the development of individualized competences [3].

The practical implementation of this approach requires new methods of assessment and accreditation. The main issue with informal learning is its recognition within traditional educational systems. A solution may lie in the development of flexible assessment systems that take into account the diversity of learning experiences and competencies acquired outside formal educational environments [4].

One of the key challenges is the active integration of digital technologies into the educational process. Digitalization opens new opportunities for bridging formal and informal learning through online courses, virtual exchanges, and interactive simulations. These technologies allow for immersion in the target culture

and professional environment without leaving home. However, their effective use requires overcoming technical and methodological barriers, including the development of high-quality educational resources and training educators to use them [5].

An important issue remains the sustainability and accessibility of informal education. Since it largely depends on the initiative of learners and the availability of resources, unequal access to educational opportunities is possible. Therefore, strategies need to be developed to ensure equal access to resources, regardless of the learners' socio-economic status [6].

The convergence of formal and informal education provides opportunities for innovation in the educational process, combining traditional educational goals with real professional practice. Supporting this convergence requires research aimed at identifying best practices, as well as the development of policies and standards that facilitate the recognition and validation of informal learning. It is important to consider cultural and individual differences to ensure that educational strategies are inclusive and adaptive [7].

The theoretical analysis of research in the field of professional foreign language training in the context of the convergence of formal and informal higher education highlights the complexity and multidimensionality of this issue. It requires a deep understanding of linguistic, cultural, pedagogical, and technological aspects, as well as a readiness for innovation and adaptation to the changing educational landscape. The convergence of formal and informal education offers unique opportunities to enhance the flexibility and individualization of professional foreign language training, making it more relevant to contemporary demands. This requires educational institutions, teachers, and learners to integrate new methods and forms of interaction [8].

For the effective implementation of the convergent approach, it is necessary to develop mechanisms for interaction between formal and informal learning, including partnerships between universities, industry organizations, SPA and online platforms. An important tool in this process is the learners' portfolio, which records their achievements within both learning formats, helping to recognize their competencies in the labor market [9].

Raising awareness about the value of informal learning plays a key role in its recognition. This requires changes in educational policy and practice, as well as a rethinking by society of the importance of self-education. Supporting lifelong learning is becoming increasingly important, as it helps specialists adapt to the changing demands of the professional environment.

In the context of professional foreign language education [10], convergence means combining various educational resources and methods to optimize the learning process. While communicative learning was once seen as opposed to the traditional grammar-translation method, today we can talk about differences between institutional (programmatic) and free communicative learning. The latter is based on complete immersion in the language environment, where communication is not regulated by a pre-established program, which is a key distinction between formal and informal language education.

J. Decius, J. Dannowsky, and N. Schaper note that students acquire knowledge not only in formal courses but also independently, outside the classroom [11]. When forming professional foreign language competence within the framework of informal education, it is necessary to go beyond traditional communicative exercises, providing learners with the opportunity to solve real-world problems, think critically, and find alternative solutions. In this case, language fulfills its primary function — a means of expressing and transmitting thought.

A. Ratana-Ubol and W. Soopunyo emphasize that informal education creates an open educational environment that fosters lifelong learning, the development of self-awareness, independence, and a love for learning [12; 558].

The convergence of formal and informal education offers several advantages:

- creation of a flexible educational system that takes into account the individual needs of students. They can combine traditional courses, online learning, self-education, and professional internships.

- development not only of academic knowledge but also of key competencies necessary for successful adaptation in the modern world (communication, critical thinking, teamwork, etc.).

- possibility of forming individualized educational trajectories that align with the students' interests and career goals.

Thus, the convergence of formal and informal education is an important direction in the development of the educational system, contributing to the creation of more effective and adaptive learning conditions. This combination allows for the development of a wide range of skills and competencies necessary for successful professional activity in a rapidly changing world.

The study concludes that the integration of formal and informal education enhances the quality of professional foreign language training for future specialists. During the research, a convergent model for forming the professional foreign language competence of students in language and non-language majors was developed and tested, confirming its effectiveness during experimental implementation.

Methods and materials

To achieve the set goal, a complex of scientific research methods was used, including theoretical analysis of scientific sources, modeling methods, statistical processing of the obtained data, and experimental research.

The scientific justification and development of the convergent model for forming professional foreign language competence in higher education students is a complex and multifaceted process that requires an interdisciplinary approach and consideration of current educational trends.

In developing the convergent model for professional foreign language competence of students in language and non-language educational programs, we followed the stages of model construction accepted in modeling theory and took into account the characteristics of the model related to the logic of its construction.

The convergent model of professional foreign language competence for students in language and non-language educational programs involves a set of interconnected components (blocks) that are implemented in the learning process: *target*, *methodological-content*, and *evaluation-resultant* components.

Target block. The model is based on the social and state order, which is determined by the need for training specialists in language and non-linguistic educational programs. The social order is dictated by the modern requirements of the labor market, international interaction and professional mobility, while the state order is focused on training specialists with high professional foreign language competence within the framework of educational and economic policy.

The *methodological-content* block implements various approaches and principles that should guide the formation of foreign language competences. The scientific basis of this model is based on the competence, convergent, communicative, multimodal, interdisciplinary approaches, which promote the integration of different components of training: linguistic, professional and intercultural. The convergent model combines theoretical training with practical skills, making training flexible and adaptable to the changing conditions of the professional environment. For the effective implementation of the proposed model, we use the principles of convergence, individualization, contextualization, interactivity and flexibility, which ensures the adaptation of educational programs to the needs of students.

When developing the convergent model of professional foreign language competence, the most important step is defining the set of competencies required for successful professional interaction in a foreign language.

Based on the obtained data, we have identified a list of key competencies and skills for their inclusion in the model.

1. *Foreign Language Component*. The foreign language component includes the linguistic aspects necessary for professional foreign language interaction: mastering professional terminology, communicative strategies, developing skills in conducting professional dialogues, negotiations, presentations, as well as responding appropriately to intercultural differences, cultural nuances in communication, and working with authentic materials.

2. *Technological Component*. The technological component involves the ability to apply modern digital tools to enhance the effectiveness of learning: artificial intelligence and chatbots, mobile applications, websites, online case studies, personalized learning paths, and gamification.

3. *Development of Soft Skills*. Soft skills refer to universal skills necessary for working in an international professional environment: teamwork, creative thinking, emotional intelligence, presentation and public speaking skills, critical thinking, and time management.

4. *Practical Convergence*. The convergence of formal and informal educational environments, formal and informal methods (e.g., combining academic lectures and seminars with online clubs, workshops, and language marathons), organizing quests, excursions, master classes, and open-air events, where participants actively use the language while interacting with native speakers both online and offline.

These components form the basis for the effective development of professional foreign language competence. Such comprehensive training not only promotes mastering a foreign language at a professional level but also prepares learners for its use in specific professional contexts.

An important methodological guideline for our research is the idea that the qualitative and substantial characteristics of any system are determined by its conditions. In this regard, the next step was the development of pedagogical conditions for the convergence of formal and informal foreign language education for students at Kazakhstani universities. Based on the fact that the convergence of formal and informal foreign language education is grounded in the principles of lifelong learning, as well as the analysis of the potential for this convergence, we identified a set of pedagogical conditions for the convergence of formal and informal foreign language education.

Condition 1. Construction and implementation of individualized learning paths for students to meet their educational needs. The creation and implementation of individualized learning paths is achieved through detailed diagnostics of foreign language proficiency levels and analysis of each student's educational needs. The introduction of adaptive learning platforms, the use of electronic portfolios, and mentoring support allow for the development of personalized learning trajectories that align with the professional and personal goals of the students.

Condition 2. Polypositionality of the teacher. When implementing the convergence of formal and non-formal foreign language education, the teacher fulfils several pedagogical roles, using different technologies and methods of work, such as a foreign language teacher; tutor (helps the student to create an individual educational route and increases the efficiency of its implementation); coach (reveals the potential of the student's personality); personal growth coach (helps the student with time management, discipline and motivation for further activity); trendologist.

Condition 3. Ensuring the integrity of professional foreign language training through the convergence of formal and informal foreign language education. This pedagogical condition is realized by integrating formal educational programs with additional opportunities for informal learning, such as student participation in language clubs, conferences, international projects, excursions, travel, internships, online courses, and professional competitions. This expansion of learning boundaries contributes to immersing students in a real professional foreign language environment, thereby developing their ability to apply the language in practice.

Condition 4. Integration of teaching methods. When integrating teaching methods, various teaching methods or educational strategies are combined to achieve more effective results in accordance with the needs of the learners.

Condition 5. Readiness for students' educational choice. Educational choice is "an important factor determining educational achievements" when students must choose paths that lead them to obtaining a quality education [13].

Condition 6. Digitalization and multimodal approach. This condition promotes the use of various tools and materials that combine different forms of digital multimedia content in the learning or communication process, making it more accessible, engaging, and suitable for various learning styles of students [14].

Condition 7. Integration of foreign language elements into curricula. When integrating foreign language elements into curricula, components of a foreign language are included to enrich the learning experience and support students' language development. This includes authentic texts such as articles, stories, or news in the foreign language for reading and discussion in the classroom; audio and video materials created in the foreign language; tasks where students can use the foreign language for projects, presentations, or research; and combining foreign language study with other subjects, allowing students to apply language skills in various contexts.

Condition 8. Interdisciplinary courses. Interdisciplinary courses integrate knowledge from different fields to gain a deeper understanding of complex problems or topics.

Condition 9. Professional support for teachers. Professional support for teachers involves providing them with various resources, tools, training, and other forms of development to enhance their interdisciplinary competencies, pedagogical skills, teaching effectiveness, and overall professional growth.

The evaluation-resultant block is aimed at determining the level of formation of professional foreign language competence. The evaluation criteria are as follows:

1) *Motivational criterion*: The level of students' interest in learning a foreign language, their desire for professional development, including in a foreign language.

2) *Knowledge-based criterion*: The volume and depth of knowledge in the foreign language, mastery of terminology, and understanding of the cultural aspects of communication.

3) *Practical criterion*: The ability to apply knowledge in real and artificially created foreign language communication situations, the level of proficiency in oral and written communication.

4) *Individual-activity criterion*: The level of autonomy in the learning process, students' ability to self-organize and plan their educational activities.

5) *Subjective criterion*: Self-assessment of the level of proficiency in professional foreign language skills and satisfaction with the learning process.

The evaluation was carried out on three levels: low, medium and high.

Having scientifically substantiated the developed convergent model of professional foreign language competence of higher school students, we started to solve the tasks of experimental research on its approbation, which included:

- complex diagnostics of the current state of professional foreign language training;

- approbation of the convergent model of professional foreign language competence of higher school students, namely on language and non-linguistic educational programs;

- analysis of the obtained results of professional foreign language training in the conditions of convergence of formal and non-formal higher education.

The following types of works were carried out at the *ascertaining stage*:

1) in order to actually confirm the existence of the research problem in the practice of foreign language training of students of language and non-linguistic educational programs and the need to build a convergent model of professional foreign language competence of students:

- diagnostics of the teaching staff's awareness of the peculiarities of informal education and advantages of convergence of formal and informal education;

- diagnostics of students' educational needs in providing conditions of convergence of formal and informal higher education;

2) in order to determine the starting positions of the experimental research and to identify the quality of foreign language training of higher school students:

- diagnostics of the initial level of the foreign language competence of the students of higher education.

The *formative stage* of the experimental research involved the implementation and integration of the developed convergent model of professional foreign language competence into the educational process for university students.

At *the control-analytical stage* of the experimental research, a repeated diagnosis of the formation of professional foreign language competence of students was carried out in order to identify the dynamics of the results and assess the effectiveness of the developed convergent model of professional foreign language training for university students.

Results and Discussion

The basis for conducting the experimental research to test the developed model of professional foreign language training for university students in the context of the convergence of formal and informal higher education were:

1. Language educational programs:

- Educational program 6B01705 — Foreign language: two foreign languages at the Faculty of Foreign Languages, Karaganda Buketov University (Karaganda, Kazakhstan);

- Faculty of Foreign Languages, Novosibirsk State Pedagogical University (Novosibirsk, Russia).

2. Non-linguistic educational programs:

- Educational program 6B01503 — Physics (specialization "6B015 Training of teachers for natural science subjects") at the Faculty of Physics and Technology, Karaganda Buketov University (Karaganda, Kazakhstan).

- Educational program 6B01509 — Biology (specialization "6B015 Training of teachers for natural science subjects") at the Faculty of Biology and Geography, Karaganda Buketov University (Karaganda, Kazakhstan);

- Non-linguistic educational programs at S. Seifullin Kazakh Agrotechnical University (Astana, Kazakhstan).

The experimental research involved 95 senior-year students and master's degree students from the aforementioned educational programs at the universities. 48 students were assigned to the experimental group, and 47 students to the control group.

The group division was made randomly, i.e., without linking it to the results obtained regarding the level of formation of their professional foreign language competence or their academic performance.

Determining the components of professional foreign language competence and their core characteristics allowed us to identify the criteria and indicators for assessment, along with the corresponding levels of formation (high, medium, low), as presented in Table 1.

T a b l e 1

Criteria and indicators for evaluating components of professional foreign language competence based on the level of formation

Compo-nents	Criteria	Indicators of level of formation		
		High	Medium	Low
1	2	3	4	5
Communi-cative skills (CS)	1) Skills in written business communi-cation in a foreign language 2) Skills in negotia-tions and participa-tion in business meetings in a for-eign language	1) In-depth knowledge of business communication specifics in a foreign lan-guage and developed skills in constructing a well-argued and clear message. 2) Developed skills in con-ducting communication ef-fectively and adapting it as needed depending on the situation and the communica-tion goal.	1) Sufficient knowledge of business communication specifics in a foreign lan-guage and partially devel-oped skills in constructing a well-argued and clear mes-sage. 2) Partially developed skills in conducting communication effectively and adapting it as needed depending on the situation and the communica-tion goal.	1) Insufficient knowledge of business communication spe-cifics in a foreign language and poorly developed skills in constructing a well-argued and clear message. 2) Poorly developed skills in conducting communication effectively and adapting it as needed depending on the situation and the communica-tion goal.
Professional language skills (PLS)	Understanding and using foreign lan-guage professional terminology. 2) Skills in drafting and editing profes-sional documents in a foreign language	1) A rich professional vocab-ulary and active use of it in communication. 2) Knowledge of the struc-ture of professional docu-ments and developed skills in drafting and editing profes-sional documents in a foreign language.	1) Sufficient professional vocabulary and fairly active use of it in communication. 2) Good knowledge of the structure of professional doc-uments and partially devel-oped skills in drafting and editing professional docu-ments in a foreign language.	1) Poor professional vocabu-lary and rare use of it in communication. 2) Insufficient knowledge of the structure of professional documents and poorly devel-oped skills in drafting and editing professional docu-ments in a foreign language.
Intercultural competence (IC)	Knowledge of cul-tural norms and rules of interaction in a foreign lan-guage. Ability to adapt to an intercultural work environment.	1) Knowledge of cultural norms, adherence to interac-tion rules in a foreign lan-guage, demonstrating respect and tolerance. 2) Developed ability to adapt the message and behavior in a situation, intercultural in-teraction and achieve mutual understanding.	1) Sufficient knowledge of cultural norms, partial adher-ence to interaction rules in a foreign language, insufficient demonstration of respect and tolerance. 2) Partially developed ability to adapt the message and behavior in an intercultural interaction situation and achieve mutual understand-ing.	1) Insufficient knowledge of cultural norms, rare adher-ence to interaction rules in a foreign language, demonstra-tion of disrespect and intoler-ance. 2) Poorly developed ability to adapt the message and behav-ior in an intercultural interac-tion situation and achieve mutual understanding.
Technical skills (TS)	Ability to use spe-cialized software in a foreign language Skills in searching for information and resources in a for-eign language	1) Knowledge of software and developed skills in using it in a foreign language. 2) Developed skills in search-ing, analyzing, and selecting information and resources in a foreign language.	1) Sufficient knowledge of software and partially devel-oped skills in using it in a foreign language. 2) Partially developed skills in searching, analyzing, and selecting information and resources in a foreign lan-guage.	1) Insufficient knowledge of software and poorly devel-oped skills in using it in a foreign language. 2) Poorly developed skills in searching, analyzing, and selecting information and resources in a foreign lan-guage.

The experimental research for testing the developed convergent model of professional foreign language competence for university students was carried out in the conditions of a natural methodological experiment and was conducted in three stages: *ascertaining, formative, and control-analytical*.

We will not dwell on the description of the *ascertaining stage* of the research, as it was presented in our previous article [3; 155]. To recap, during the diagnostic stage, the relevance of the problem was identified,

the initial levels of professional foreign language competence were diagnosed, and educational needs were determined.

The *formative stage* of the experimental research involved the implementation and integration of the developed convergent model of professional foreign language competence into the educational process of university students. The experimental research, aimed at forming the professional foreign language competence of students in language and non-language educational programs, focused on providing a formative impact through a series of informal learning activities in four key areas:

- communicative skills;
- professional language skills;
- intercultural competence;
- technical skills.

This series of activities was carried out in 2023-2024 as part of project № AP19678268 "Scientific and methodological foundations for the implementation of professional foreign language training in the context of convergence between formal and informal higher education" and included:

— A field language school "Language Open-Air";

— A training session by Professor Dr. Rab Nawaz Lodhi (University of Central Punjab, Pakistan) on the topic "Qualitative Research Design";

— An online master class on the topic "Digital Educational Environment as a Platform for the Implementation of Advanced Ideas in Traditional and Non-formal Foreign Language Education";

— Non-credit courses on the Coursera platform.

At the *control-analytical stage* of the experimental research, a repeated diagnostic assessment of the professional foreign language competence of the students was carried out to identify the dynamics of the results and determine the effectiveness of the developed convergent model of professional foreign language training for higher education students.

As the tool for the repeated diagnostic assessment, the same tasks as those used in the initial stage were applied. The results obtained are presented in Figures 1 (a, b), 2 (a, b).
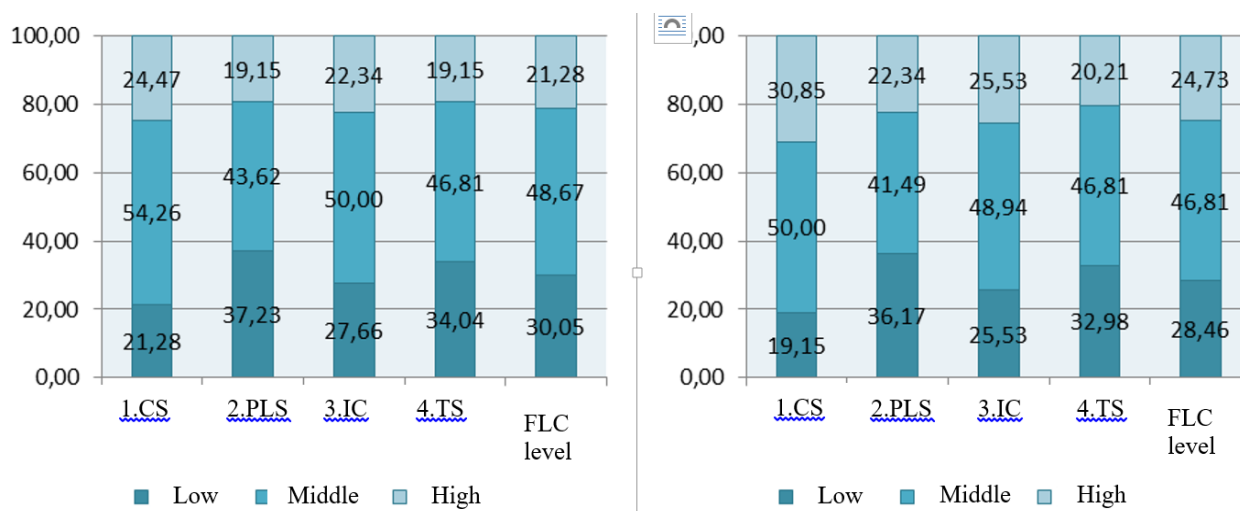
Note: a — CG at the initial stage; b — CG at the control-analytical stage.

Figure 1. Results of the control group diagnosis of the level of development of professional foreign language competence by components at the initial and control-analytical stages
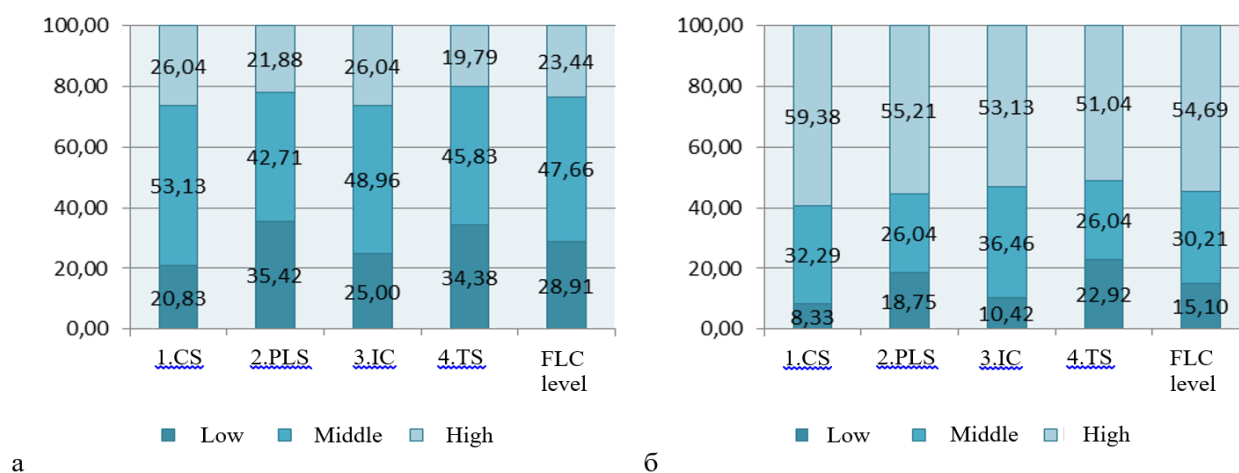
Note: a — EG at the initial stage; b — EG at the control-analytical stage

Figure 2. Results of EG diagnostics of the level of formation of professional foreign language competence by components at the initial and control-analytical stages

According to the results shown in Figure 1, neither the overall professional foreign language competence (PFLK) skills nor the individual components of the PFLK for the control group (CG) have significantly changed. The percentage of students with a high level of formation increased most notably in the "communicative skills" component (by 6.38 %), with this component having the highest percentage among all components (30.85 %).

The smallest increase in the number of students with a high level of formation was observed in the "technical skills" component (by 1.06 %), with this component still having the lowest percentage of students (20.21 %).

Based on the number of students in the CG with a high level of formation, the best-formed components of PFLK at the control-analytical stage were "communicative skills" (30.85 %) and "intercultural competence" (25.53 %). The share of students in the CG with a high level of formation in the overall level of the researched competence increased on average by only 3.45 %.

Based on the presented data, it can be concluded that in the educational process, where the convergent model has not been implemented, the formation of professional foreign language competence (PFLK) occurs inconsistently and without continuity, with insufficient attention paid, particularly to the development of students' technical skills.

The percentage of students in the experimental group (EG) with a high level of PFLK at the control-analytical stage (Fig. 2) increased compared to the initial stage, as well as in comparison with the results of the control group (CG), more than twice, both for the individual components and overall. The greatest increase was observed in the "communicative skills" component, which rose to 59.38 %, indicating that this component was the easiest to develop. The least increase was observed in the "technical skills" component (up to 51.04 %), which may be attributed to the specific nature and vast diversity of technical equipment and specialized software.

On average, across all components, the percentage of students in the EG with a high level of PFLK increased from 23.44 % to 54.69 %, representing an increase of 31.25 % or 2.33 times. The percentage of students in the EG with low and medium levels of PFLK decreased by two or more times, respectively. The results of the control-analytical stage demonstrate a significant improvement in the formation of PFLK in the EG students. Therefore, it can be concluded that the convergent model of professional foreign language competence introduced into the educational process and tested is effective.

To confirm the significance of the results obtained from the experimental study and to draw accurate conclusions, we performed a statistical analysis using the Student's t-test. The null and alternative hypotheses were formulated as follows:

H_0 — The results of the EG and CG at the control stage of the experimental study do not differ significantly.

H_1 — The results of the EG and CG at the control stage of the experimental study significantly differ. The following conditions were accepted for the rejection of one hypothesis and the acceptance of another:

If t-calculated < t-critical, H_0 is accepted.

If t-calculated ≥ t-critical, H_1 is accepted.

The results of the calculations of the t-criterion are reflected in Table 2.

Table 2

The result of the calculation of the t-Student test coefficient for independent samples for the statistical verification of the significance of differences in the obtained results of the EG and CG at the ascertaining stage

Groups	EG	CG
1	2	3
N, number of students in the group	48	47
Xav, average score	72,47917	70,48936
D, dispersion	367,8293	377,3858
Sd, root of dispersion	19,17888	19,42642
m, standard error	2,768233	2,833634
t- calculated	-	0,5023
F, number of degrees of freedom	-	93
α, significance level	-	0,05
t-critical	-	2,02

The number of degrees of freedom was calculated using formula (1):

$$f = n_1 + n_2 - 2 \tag{1}$$

The value of Student's t-criterion for independent samples was calculated according to the formula (2):

$$t = \frac{\left| X_{cp^1} - X_{cp^2} \right|}{\sqrt{m_1{}^2 + m_2{}^2}} \tag{2}$$

The following formula (3) was used to calculate the standard error:

$$m = \frac{S_d}{\sqrt{X_{cp}}} \tag{3}$$

The t-critical value for our study was taken from the table of critical values of the Student's t-test, which depends on the degrees of freedom and the significance level α. Comparing it with the t-calculated value led to the acceptance of the null hypothesis about the absence of significant differences in the results of the initial stage obtained by students in the EG and KG, i.e., the starting positions of both groups are the same.

In order to *statistically check the significance of the differences in the results obtained by the EG at the initial and control-analytical stages of the experimental study*, the Student's t-test for dependent samples (for the same sample) was chosen as the statistical method for hypothesis testing. This method was also selected due to the conformity of the sample data with the normal distribution law.

The null and alternative hypotheses were formulated as follows:

H_0- The results at the control-analytical stage of the experimental study do not significantly differ from the results at the initial stage.

H_1- The results at the control-analytical stage of the experimental study significantly differ from the results at the initial stage.

To accept one hypothesis and reject the other, the following conditions were applied:

If t-calculated < t-critical, H0 is accepted.

If t-calculated ≥ t-critical, H1 is accepted.

The results of the calculations for the Student's t-test coefficient are reflected in Table 3.

The result of the calculation of the t-statistic for dependent samples for the statistical verification of the significance of the differences in the results obtained by the EG at the ascertaining and control-analytical stages

Stages	Ascertaining stage	Formative stage	Difference
N, number of students in the group	48	48	-
Xav, average score	72,47917	88,47917	16
D, dispersion	367,8293	475,3187	24,85106
Sd, root of dispersion	19,17888	21,80181	4,985084
m, standard error	2,768233	3,14682	0,719535
t-calculated	-	-	22,23659
F, number of degrees of freedom	-	-	47
α, significance level	-	-	0,05
t-critical	-	-	2,02

The number of degrees of freedom was calculated using formula (4):

$$f = n - 1 \qquad (4)$$

The value of the Student's t-test was calculated using the formula (5):

$$t = \frac{X_{cp}}{m} \qquad (5)$$

For calculating the standard error, the following formula (6) was applied:

$$m = \frac{S_d}{\sqrt{N}} \qquad (6)$$

According to the table of critical values of Student's t-criterion t-calculated is equal to 22.23659, which is a greater value than t-critical, and confirms the alternative hypothesis about the presence of significant differences between the results in EG at the formative and control-analytical stages.

Consequently, we have grounds to assert that the changes in the results at the control-analytical stage, which occurred due to the forming stage of the experimental study, are statistically significant with a probability of at least 95 %, and the developed convergent model, implemented in the pedagogical process of the university, is effective for the formation of professional foreign language competence of students of language and non-linguistic educational programs.

In our opinion, the higher performance of EG participants is connected with:

- strengthening of personal involvement of students in the process of mastering professional foreign language competence;

- increase of their professional motivation;

- realization of the quality of mastering foreign language communicative skills in the context of convergence of formal and non-formal education.

The positive dynamics is due to the continuous nature of foreign language training with the application of developmental technologies and active methods of foreign language learning in view of the convergence of formal and informal foreign language education.

Conclusion

The results of the testing showed that the implementation of the convergent model has a significant positive effect on the formation of foreign language competence, particularly in key areas: communicative skills, intercultural competence, and professional language skills. This confirms the theoretical justification and practical significance of the proposed model, as well as its ability to adapt to the demands of the modern educational process.

Thus, the testing of the convergent model of professional foreign language competence across several faculties demonstrated its effectiveness in the context of higher education, as well as the possibility of successfully combining formal and non-formal learning to achieve quality results in student training. The convergent model of education not only fosters the development of essential professional competencies but also

meets the modern requirements of the educational process, providing flexibility and accessibility of educational opportunities for students.

The results of this study emphasize the importance of the convergence of formal and non-formal foreign language education in improving the quality of training specialists in higher education institutions, and will also serve as a basis for further refinement and implementation of similar models in educational practice.

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Жоо-да кәсіби шеттілдік құзыреттіліктің конвергенттік моделін енгізу және сынақтан өткізу

Мақалада жоғары оқу орнының білім беру үдерісіне кәсіби шет тілдік құзыреттіліктің конвергенттік моделін енгізудің теориялық және практикалық аспектілері қарастырылған. Бұл модель бейресми білім беруді институционалдық білім беру ортасына қосуды көздейді. Заманауи зерттеулерге сүйене отырып, мақаланың авторлары шет тілге кәсіби даярлықта конвергенттік тәсілді қолданудың негіздемесін ұсынады, өйткені ол екі оқу форматының ең тиімді аспектілерін біріктіретін икемді және бейімделгіш білім беру жүйесін қалыптастыруға мүмкіндік береді. Модельдің негізгі компоненттері, оны сынақтан өткізу әдістері ұсынылып, енгізу нәтижелері талданған. Студенттердің шет тілдік құзыреттілігін қалыптастыруда конвергенттік тәсілді пайдаланудың маңыздылығы негізделген. Мақаланың мақсаты — жоғары оқу орнында кәсіби шет тілдік құзыреттіліктің конвергенттік моделін енгізу және сынақтан өткізу нәтижелерін ұсыну, сондай-ақ оның тиімділігін талдау. Қойылған мақсатқа қол жеткізу үшін келесі міндеттер айқындалды: 1) шет тілін оқытудағы конвергенттік тәсілдің теориялық негіздерін сипаттау; 2) әртүрлі әдістемелердің конвергенциясы негізінде кәсіби шет тілдік құзыреттілік моделін ұсыну; 3) модельді сынақтан өткізіп, оның тиімділігін бағалау. Зерттеу нәтижесінде жоғары оқу орнында кәсіби шет тілдік құзыреттіліктің конвергенттік моделін енгізу тілді неғұрлым тиімді меңгеруге, студенттердің уәждемесін арттыруға және түрлі әдістемелерді білім беру үдерісіне біріктіруге ықпал ететіні анықталды.

Кілт сөздер: конвергенция, кәсіби шет тілдік құзыреттілік, конвергенттік модель, педагогикалық инновациялар, формальды білім беру, бейресми білім беру, бейресми шет тілдік білім беру.

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Внедрение и апробация конвергентной модели профессиональнойиноязычной компетенции в условиях вуза

В статье рассматриваются теоретические и практические аспекты внедрения конвергентной модели профессиональной иноязычной компетенции в образовательный процесс вуза, которая предполагает включение неформального образования в институциональную образовательную среду. Опираясь на современные исследования, авторы научной работы обосновывают использование конвергентного подхода к иноязычной подготовке будущих специалистов возможностью создания гибкой и адаптивной образовательной системы, сочетающей лучшие аспекты обоих форматов обучения. Представлены основные компоненты модели, методы ее апробации, а также анализированы результаты внедрения. Обоснована значимость использования конвергентного подхода для формирования иноязычной компетенции у студентов. Цель данной статьи — представить результаты внедрения и апробация конвергентной модели профессиональной иноязычной компетенции в вузе, а также осуществить анализ ее эффективности. Для достижения поставленной цели были сформулированы следующие задачи: 1) описать теоретические основы конвергентного подхода в обучении иностранному языку; 2) представить модель профессиональной иноязычной компетенции на основе конвергенции различных методик; 3) провести апробацию модели и оценить ее эффективность. В результате проведенного исследования был сделан вывод о том, что внедрение конвергентной модели профессиональной иноязычной компетенции в вузе способствует более эффективному освоению языка, повышению мотивации студентов и интеграции различных методик в образовательный процесс.

Ключевые слова: конвергенция, профессиональная иноязычная компетенция, конвергентная модель, педагогические инновации, формальное образование, неформальное образование, неформальное иноязычное образование.

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