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The use of a regional component in the multilingual training of future biology teachers

Gulzhan Kabdolova*

Pavlodar Pedagogical University
140000, 60 Mira Str., Pavlodar, Republic of Kazakhstan

Kairbay Bazarbekov

Pavlodar Pedagogical University
140000, 60 Mira Str., Pavlodar, Republic of Kazakhstan

Nataliya Tarasovskaya

Pavlodar Pedagogical University
140000, 60 Mira Str., Pavlodar, Republic of Kazakhstan

Sholpan Khamzina

Pavlodar Pedagogical University
140000, 60 Mira Str., Pavlodar, Republic of Kazakhstan

Zharkyn Kabdolov

Pavlodar Pedagogical University
140000, 60 Mira Str., Pavlodar, Republic of Kazakhstan

Abstract

Relevance. In modern Kazakhstan, the issue of multilingual education is more relevant than ever before in the educational system. Effective training of future teachers who are able to work with diverse linguistic and cultural groups of students is a key task to ensure quality education.

Purpose. The purpose of the study is to find out the current level of motivation of students to acquire multilingual competencies, and to identify problems that hinder the development of the integration of the regional component into the multilingual training programme for future biology teachers in Kazakhstan.

Methodology. For this purpose, a survey was conducted among second-year students of the Faculty of Biology of A. Baitursynov Kostanay Regional University in the academic year 2023-2024.

Results. According to the results of a survey conducted among second-year students, it was possible to see that, in general, students assess their multilingual competence at an average level and are motivated to develop it. Comparative analysis showed that the level of motivation of students in this matter has not changed since the previous academic year. In order to achieve positive dynamics, it is worth considering the successful experience of Serbia in the issue of teacher training, and emphasising the more urgent problems that remain unresolved, in particular access to methodological materials in different languages and insufficient funding of projects in this area.

Conclusions. The study will help in the future to build successful methods and strategies that can be adapted for use in Kazakhstan. The recommendations can be used to improve teaching methods and enrich educational programmes. This

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*Corresponding author



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contributes to the creation of a more inclusive and adapted educational environment that considers the diversity of languages and cultures in Kazakhstan, which will contribute to improving the quality of education and preserving multilingual heritage.

Keywords: pedagogy; secondary school; motivation; ecology; adaptation; culture.

Introduction

Kazakhstan is a multinational country where different languages are spoken. Kazakh and Russian are the official languages. Some of the languages also include Uighur, Uzbek, Tajik, Kyrgyz, Turkmen, etc. Many of them are native to certain ethnic groups, and are used in everyday communication. It is important for biology teachers to know the languages and culture of the peoples of each region of the country, and not only the features of flora and fauna. Practicing teachers will meet with a variety of cultural traditions that will influence the perception of biological sciences.

The use of the regional component in the multilingual training of future biology teachers in Kazakhstan faces problems and challenges. R.L. Bauyrzhovna et al. [1] consider the importance of teachers' knowledge of several languages. In particular, they evaluate multilingual competencies and motivation of biology students in Kazakhstan. The majority of biology students showed high motivation to use technologies for the development of multilingual competence. The study emphasises the importance of focusing on multilingualism in education, moving away from traditional approaches that distance languages from each other. However, the authors did not propose specific ways to solve the problem.

A suitable option is proposed by S.K. Moldabekova and B.P. Syzdykova [2]. The researchers suggest that when organising training to improve efficiency, it is necessary to use motivation mechanisms, which should be considered in the context of student self-study. The paper presents several effective methods that are designed to be used just in distance learning. In particular, students should have open access to methodological materials and the library of a higher educational institution in order to receive relevant knowledge on demand. The researcher focuses on the theory of hopes, and emphasises that teachers should form a high, but realistic level of results that they expect from students, and inspire them that they can achieve this level if they make an effort. This will help to gain theoretical knowledge, but, unfortunately, not practical, which is especially important for biology teachers.

The importance of the ability to develop textbooks, and to choose a suitable textbook, is presented in the paper by K.N. Mamirova et al. [3]. The researchers stressed that the educational material should reflect the national mentality, since through the textbook it captures spatial consciousness, planetary consciousness, and, at the same time, the consciousness of the ethnos, the consciousness of the native region, native land, native hearth. However, the researchers did not consider this issue from the standpoint of a multilingual school, and this significantly complicates the process.

A similar survey was conducted in 2022 by T. Laura et al. [4]. It showed that future teachers, in the majority, are really open to innovation. This allows widely using new technologies and teaching methods that have sufficient

flexibility to adapt to the conditions of different regions of Kazakhstan.

B.G. Mazhitovna et al. [5] found that science teachers working in primary schools in Kazakhstan consider themselves more competent than secondary school teachers. This may be due to the difficulties faced by young teachers when practicing teaching in classes of multilingual schools, where students are less flexible to conduct lessons in non-native languages, while primary school students are interested in the multilingualism of educational materials.

Respect for the language of the people of the region will help to interact effectively with students and their parents. The inclusion of a regional component in the multilingual education of future biology teachers is an approach that recognises the importance of cultural and ecological diversity. Ultimately, biology is deeply connected with local ecosystems, agriculture, and medical practice. Therefore, the purpose of this study was to find ways to motivate future teachers to acquire multilingual competence, formulate problems of using the regional component, and try to find solutions to them. The authors of this study suggest relying on the experience of other countries, in particular, Serbia. Although Serbia and Kazakhstan have different geographical and historical contexts that affect the multicultural aspects of their societies, there are different ethnic groups in Serbia and Kazakhstan, which creates a multinational society. Both countries have a rich cultural heritage, which includes traditions, customs, religion, and art of different ethnic groups. This creates many cultural dimensions in both societies. Serbia and Kazakhstan have policies to maintain and promote cultural and ethnic diversity. Both countries have laws and initiatives aimed at protecting the rights and interests of various ethnic groups.

Materials and Methods

This study was conducted based on comparative methods. In the course of the work, the experience of various countries in the field under study was analysed. The results of a study by the Council of Europe [6] were taken as a basis. The approach considered allowed identifying successful practices that are used in other countries. Within the framework of this study, only those countries were considered where the conditions of multiculturalism, in the opinion of the authors, are either similar to those in Kazakhstan, or represent an even more complex environment (with a large number of groups that belong to linguistic minorities).

Since the issue is being considered in the context of a multilingual school, it was necessary to investigate the level of motivation of future teachers to learn several languages, including those that are not official in Kazakhstan. A survey designed specifically for students who plan to work as biology teachers in schools in Kazakhstan in the future has been selected for analysis. As part of the research group, 80 students who are studying in

the second year of the Faculty of Biology of A. Baitursynov Kostanay Regional University in the academic year 2023-2024 were included in the study. The second-year students were chosen precisely in order to get fresh data generated from students who have recently started the process of studying at a higher educational institution.

To collect data in the study, a structured interview form was used, offering several formulations of answers used a year earlier in similar conditions at Mukhtar Auezov South Kazakhstan University [1]. Each participant was asked leading questions to determine the views of biology students on multilingual competencies and on the ability of universities to develop multilingual competence, and to establish the level of motivation of students to use technologies for the development of multilingual competence. Moreover, the survey participants were asked to choose the appropriate score, assessing their personal attitude to the subject of the question on a five-point scale. To facilitate the analysis of the collected data, a content analysis method was subsequently applied, which allowed structuring the information obtained during the survey and highlighting key patterns and trends. The interview results were presented in the form of tables, which contributed to a clear and convenient data analysis.

When analysing the collected data, the research team interpreted the results of a survey interview conducted among second-year students. This provided a deeper

understanding of their views and motivation in the context of multilingual training and the use of language resources. Based on the results obtained, directions were developed for further actions and recommendations on the development of multilingual competencies, the integration of multilingualism into the educational programme, support for students' motivation in learning languages and developing multilingual skills, and cooperation with multilingual societies. These recommendations can contribute to the development of multilingual training of future biology teachers and improve the educational environment in Kazakhstan, in particular, in the conditions of a multilingual society of 2023 and with a perspective to the future.

Results

The introduction of regional components into the curricula of educational institutions may face a number of obstacles and difficulties that should be carefully analysed.

One of them was the language barrier. Kazakhstan is characterised by a variety of language groups and dialects, which creates difficulties in developing curricula that consider the needs of students with different linguistic backgrounds. Thus, Table 1 presents the assessments of biology students on their multilingual competencies. The students' opinions were divided into five groups: very high, high, medium, low, and very low.

Table 1. Opinions of biology students on multilingual competencies

Category	Student's opinion	Number of students
Very high	I can describe myself as a multilingual person	8
	I have always been interested in language education. Therefore, I decided to develop myself	
	Multilingualism is now a requirement for a global person. I am aware of this need	
High	I feel adequate	8
	I think I'm competent. Constantly improving	
	Multilingualism is an unavoidable necessity in a multicultural society. I consider myself multilingual	
Average	I am constantly improving, but I cannot say that I am fully competent	40
	I do not think that the training I have received is sufficient for full competence in a foreign language	3
Low	Multilingualism is, in my opinion, the possession of more than two languages. In this regard, I consider myself incompetent	11
	If we define multilingualism as the same competence in all languages, then I would characterise my competence as low	5
Very low	So far I don't describe myself as multilingual	3
	To be proficient in another language, lifelong language learning is required. Since I do not follow this path, I feel insecure in multilingualism	2
Total		80

Source: compiled by the authors.

Table 2 presents the assessments of biology students regarding the capabilities of universities to develop multilingual competence. The students' opinions were

divided into five groups: very good, good, average, bad, and very bad.

Table 2. Opinions of biology students on the possibilities of universities to develop multilingual competence

Category	Student's opinion	Number of students
Very good	I think my university is very competent in developing multilingual competence	2
	I think that a pretty good education on this topic is provided here. I am very satisfied	2
Good	Multilingual needs related to my speciality are met by my university	4
	I am getting an education where I can get enough knowledge and skills in a second language to be a biology teacher	2
Average	I think that the number of courses should be increased in order to acquire multilingual competence	26
	Of course, it's not that bad, but I think it's a standard education	25
Bad	The university where I study does not provide the necessary conditions for acquiring multilingual competence	11
Very bad	Universities do not provide education that will allow students to acquire competence in another language	8
Total		80

Source: compiled by the authors.

Table 3 presents the assessments of biology students on their motivation to use technologies for the development of multilingual competence. The students' opinions were divided into five groups: very high, high, medium, low, and very low.

Table 3. Motivation of biology students to use technologies for the development of multilingual competence

Category	Student's opinion	Number of students
Very high	I would like to be competent enough to provide multilingual education in my field	7
	I would definitely like to. We live in an era when education in one language is no longer enough. That's why I think multilingualism is very important	1
	I think that multilingualism will soon take its place among educational competencies. Therefore, I would like to have multilingual competence to be a qualified teacher	1
High	I am highly motivated. I think this is important for every future teacher	59
	Of course, I would like to use it. If the university creates the necessary conditions, I will use	3
Average	I'm not putting much effort into it, but nevertheless, I'm ready	2
Low	I guess I don't have much motivation. But if there is an app that can activate my motivation, why not?	1
	I think I don't really want to, but if I get a good opportunity, I can use it	3
Very low	I think it's too late to have multilingual competence. That's why I don't have that kind of energy	1
	I'm not really interested	1
Total		80

Source: compiled by the authors.

Despite the average level of language training and high motivation to develop multilingual competence, there remain obstacles and challenges faced by both students and teachers in this process. Some regions may lack adequate training materials and resources in regional languages, which makes it difficult to implement training programmes with regional components.

Cultural norms and practices may vary greatly in different regions of Kazakhstan. This requires careful analysis and adaptation of curricula to consider these differences and make education more culturally sensitive. Moreover, for the successful integration of regional components into curricula, additional funding is required to develop new teaching materials, train teachers, and

provide access to the necessary resources. And the implementation of regional components requires the active participation of local communities and experts. Educational institutions are not always able to ensure sufficient participation and interaction with local communities.

Assessing the impact of regional components on the quality of education can be a difficult task. It is necessary to develop methods for evaluating and monitoring the results. For example, different political and socio-cultural groups may have different interests regarding the implementation of regional components. This can cause political conflicts and resistance to change. The problem of limited access to educational materials and resources in

different languages in Kazakhstan is a serious obstacle to the successful integration of regional components into curricula. In regions where regional languages play an important role, there may be a limited number of textbooks and teaching materials in these languages. This makes it difficult to conduct training sessions and teach in local languages. Some available textbooks in regional languages may not meet educational standards and requirements because they are outdated.

Many online resources and educational platforms provide materials exclusively in official and more widely used languages (like Kazakh and Russian). This restricts the access of students studying biology in regional languages. In some regions of Kazakhstan, access to high-speed Internet may be limited, which makes online resources even less accessible to students and teachers. Resources and educational materials may be unevenly distributed between the regions of Kazakhstan, which creates inequality in access to education.

Until now, not all educational institutions have developed multilingual programmes, which limits the ability of students to study biology in regional languages. The unavailability of educational materials and resources in regional languages limits the educational opportunities of students, making it difficult for them to access quality education. Restrictions on access to educational resources in regional languages may reduce students' motivation for the learning process. Ultimately, the unavailability of educational materials in regional languages will increase linguistic inequality and complicate the preservation and development of multilingual communities. In addition, limited access to educational materials in regional languages slows down the process of preserving and developing these languages. In general, limited access to educational materials and resources in different languages is a serious challenge for the educational system of Kazakhstan, especially for those regions where regional languages are important. Solving this problem requires additional investments, the development of high-quality educational materials and improving the availability of online resources in regional languages.

Specialised training programmes should also be created for teachers working in a multilingual environment. It is important for teachers to study the specifics of regional language situations and methods of integrating regional components into curricula. This helps them to better adapt to the peculiarities of each multilingual environment. Professional development programmes may include elements of intercultural learning so that teachers better understand and appreciate the different cultural and linguistic perspectives of their students. Teachers can receive advice and support from experienced colleagues and experts in the field of multilingual education. This helps them to resolve difficulties and share experiences.

In solving problems, it is worth focusing on the experience of other countries with similar multicultural characteristics and the education system. Having studied the state of this issue in different countries, the authors of this work chose the experience of Serbia as a support [6]. Thus, an important aspect of the education of national minorities in Serbia is the emphasis on teaching Serbian as the official language. There are three separate models of teaching the state language in the country:

- Serbian for Serbian students attending schools in Serbian;
- Serbian for minority students studying in their native language;
- Serbian as a foreign language (mainly developed for migrants and refugees).

Methods and curricula have already been developed for minority students studying in their native language, considering the native language of the minority, considering the ethnic composition of the municipality in which the school is located, and on which higher educational institutions of Kazakhstan can rely. The curricula include two main programmes for teaching Serbian as a second language. The first is for students whose native language belongs to the Slavic language group (and therefore has similarities with the official language), and for students who regularly interact with the official language in their place of residence (in regions where the majority of the population are indigenous or speak the official language). The second programme is for students whose native language belongs to another language group (for example, Hungarian or Albanian) or who live in regions where there are no or very few opportunities to acquire an official language in everyday practice.

The percentage of students studying in minority languages is slightly more than 5%. In 2018, out of 1,240 public schools in Serbia, 1,114 schools were monolingual, of which the majority worked in Serbian (1,077), while others used Albanian (12), Bosnian (8), Hungarian (8), Romanian (4), Slovak (4) and Rusyn (1) as languages of instruction. Minority schools are located in regions with the largest proportion of minority residents, which makes teaching in minority languages a viable option. To graduate from primary and secondary school, students have to take exams, which may include minority languages.

Discussion

The majority of second-year biology students in the interview survey stated that they have average multilingual competencies. This indicates that there is an opportunity to improve multilingual competencies among biology students. The results of the study emphasise the importance of universities in promoting the acquisition of language skills and the need to discuss the complexity and heterogeneity of multilingual structures. Comparison with the results of a similar survey by R.I. Bauyrzhovna et al. [1] shows the lack of positive dynamics in this issue. K.N. Mamirova et al. [3] conducted a similar study in the 2022-2023 academic year, and relied on changes in legislation that really require the development of new textbooks in all subjects that include a regional component. They emphasise that in the mid-90s, state education standards, model plans and new programmes began to be developed in Kazakhstan, on the basis of which school textbooks were developed. In the secondary education system, this process was based on Resolution of the Government of the Republic of Kazakhstan No. 1173 "On the target programme of preparation and publication of textbooks and educational and methodological complexes for general education schools of the Republic of Kazakhstan" [7].

From the beginning of 2000 to the present, school education has been working on the implementation of new

approaches to the development of state standards of a new generation of education. Updating the content is based on orientation to the final result of training and shifting the emphasis to the acquisition of competencies, which is reflected in the new state standards of secondary general education [8-10]. In this paper, the component of inclusion in the process of digital technologies was considered too cursorily, which, for example, according to S. Willermark [11], now serves as one of the most basic, and should be included in every educational methodology, and the researcher paid more attention to it in her thematic literary review.

According to J.J. Schaughnessy et al. [12], in studies like the one conducted, there are two significant drawbacks that do not allow obtaining data as accurately as possible. Firstly, the survey does not show the dynamics of students' motivation in the period before admission and until 2023, which means that it is impossible to say with certainty that it was the teaching methods at the university and the learning conditions that influenced the result. Secondly, it emphasises the importance of conducting such studies more massively, and not on small groups of students.

The model of education in minority languages developed in Serbia [6] received a positive assessment in the country, and also demonstrated its effectiveness in more complex multicultural conditions compared to Kazakhstan. In particular, full education for national minorities is provided there in 8 languages, including Slovak (the other languages are Albanian, Bosnian, Bulgarian, Croatian, Hungarian, Romanian, and Rusyn). Their current system ensures the teaching of academic content in the minority language, the protection and development of the minority language and its private and public use, and develops competencies in the Serbian language necessary for full participation in Serbian society. Students integrated into this model of education for minorities study according to the same curriculum as majoritarian students studying in Serbian. The experience of Serbia shows that Kazakhstan has more conditions for the implementation of education in multiculturalism [13-15].

Despite the fact that the overall responsibility for the development and control of educational policy lies with the Ministry of Education, schools have considerable autonomy in the organisation and implementation of their educational programmes. These institutions can be both public and private, and the former are mainly financed from the state budget. Therefore, it is very important to rely on legislation related to education and seek reforms based on the experience of countries such as Serbia. However, even with the full assistance of the state, considerable efforts will need to be made to develop adapted teaching methods, create new methodological manuals and textbooks on biology for all classes of secondary schools.

In general, the study clarifies the current state of multilingual competencies among biology students in Kazakhstan and emphasises the need for further efforts to improve these competencies both at the university level and using technology. It is important to note that the general educational aspects were not reflected in this study, since it does not affect the topics of teaching biology as a science. The work of L.S. Shulman [16] provides a more detailed review of such aspects.

Despite divergent views in some respects, researchers agree that it is important to continue research in this area: developing newer survey instruments for prospective teachers, as D.A. Schmidt et al. [17] wrote, and adding to the knowledge base for educators, building on the paper by H.-J. So and B.Kim [18]. Local languages should also be included in biology education where appropriate and possible. The very definition of opportunities for the inclusion of multilingual pedagogy in the policy of primary pedagogical education is considered in the paper by M. Bergroth et al. [19]. This not only makes the subject more accessible to students, but also preserves and promotes linguistic diversity. It is important to continue to encourage future biology teachers to work closely with local communities and organisations involved in environmental protection and sustainable development. This contributes to a sense of responsibility and involvement in solving environmental problems in the region. Local experts, scientists, and conservationists can be invited to communicate with future biology teachers and students. Their expertise can provide valuable practical knowledge and inspire students to choose a career in biology [20-22].

Different regions have unique flora and fauna. Teaching future biology teachers about local biodiversity allows them to teach students the importance of preserving and understanding species in their region. It is important to encourage future biology teachers to conduct field research and observations in their regions [23-24]. This hands-on experience can provide valuable knowledge about local ecosystems and biodiversity. And it is also important to encourage environmental education and awareness in curricula. Students should be taught by talking about the environmental problems facing their region, and inspire them to take active action in contributing to solving these problems [25-27].

To solve the problems, it is important to develop a comprehensive plan for the training of future biology teachers, considering regional peculiarities. This plan should include enhanced vocational training, access to educational resources in different languages, support for teachers and cooperation with local organisations and communities to integrate the regional component into the educational process.

Such use of the regional component in the multilingual training of biology teachers allows creating a more inclusive and adapted education that considers the diversity of languages and cultures in Kazakhstan, which has a century-old history relating to different nationalities (for more information about migrations and the history of tourism, see the papers by M. Kanatuly [28]). This approach helps future teachers to be better prepared to work with multilingual students and promotes the preservation and respect of local languages and cultures.

All these obstacles and difficulties require careful analysis and development of strategies to overcome them, and it is important that graduates of pedagogical universities have qualifications that fully comply with the Law of the Republic of Kazakhstan No. 14-VIII ZRC "On professional qualifications" [29], and future biology teachers, moreover, have the appropriate the level of environmental competence indicated by M. Khrolenko [30] (this problem is raised in the papers by K. Azhboldaeva et al. [31] and G. Uno [32]). At the same

time, the introduction of regional components into curricula can also bring significant benefits, including the preservation of cultural and linguistic identities, improving the quality of education, and strengthening intercultural understanding. Kazakhstan has already successfully implemented a bilingual education system, and the country has great success in this matter, in comparison, for example, with Spain, as indicated by I. Senra-Silva [33] and R. Sánchez-Cabrero et al. [34]. Obviously, this area has good prospects. Teachers should be able to identify the current language group, which is described in detail by L. Aronin and L. Mocozet [35], and be able to adapt the learning process to it.

It is useful to encourage future biology teachers to use an interdisciplinary approach, integrating biology with other subjects, such as geography, history and sociology, to explore the interrelationships between science and regional issues. For all this, it is necessary to provide research opportunities for future biology teachers so that they can explore regional scientific issues. This can deepen their understanding of local ecosystems and give them valuable research skills.

There should be continuous professional development for biology teachers so that they can be aware of regional environmental problems, teaching methods, and scientific achievements. Moreover, regionally relevant assessment tools and assessment methods need to be developed to assess students' understanding and application of biological concepts in their specific context.

Conclusions

Summing up the results of the study, the author emphasises the relevance and importance of the issue of multilingual education in modern Kazakhstan, where the diversity of linguistic and cultural groups is an integral part of society. Effective training of future teachers who are able to work in a multilingual environment and consider the diversity of students is becoming a key task of the educational system. The author managed to achieve the goals by determining the level of motivation of students to acquire multilingual competencies, although for more updating of the data, the study needs to be conducted regularly, at all stages of training. The authors also managed to identify some problems that hinder the development of the integration of the regional component into the multilingual training programme for future biology teachers in Kazakhstan.

The author of the study proposed specific directions for the methodology of teaching future biology teachers, which considers the multilingual environment of the

school and includes a regional component. They also highlighted a list of problems that can be encountered when implementing educational projects in the context of a multilingual school. The results of the survey emphasise the need for future biology teachers to be more actively motivated to learn more than one language. Comparative analysis with the experience of other countries (Serbia) provides valuable recommendations for improving teaching methods in higher educational institutions of Kazakhstan.

This paper serves as a starting point for further research and development of successful methodologies and strategies that can be adapted for use in Kazakhstan. The recommendations resulting from this study can contribute to improving the quality of education and creating a more inclusive educational environment, considering the diversity of languages and cultures in the country. This, in turn, promotes respect for the multilingual heritage of Kazakhstan and the maintenance of socio-cultural harmony in society.

The conducted research can serve as a starting point for further research in the field of multilingual education and training of biology teachers. First of all, it demonstrated positive dynamics in the development of motivation of future teachers to master languages. It can inspire researchers and educational institutions to do more in-depth research aimed at developing specific teaching methods adapted to specific regional and linguistic features of Kazakhstan.

It is also worth noting that the successful implementation of multilingual education and training of future biology teachers based on the proposed schemes will help to improve social inclusion and promote the preservation and respect of cultural and linguistic diversity in Kazakhstan. This can contribute to a more harmonious and respectful society, where everyone can get a quality education and realise their potential regardless of language and cultural affiliation.

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Conflict of Interest

None.

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Використання регіонального компоненту в мультилінгвальній підготовці майбутніх учителів біології

Гульжан Кабдолова

Павлодарський педагогічний університет
140000, вул. Миру, 60, м. Павлодар, Республіка Казахстан

Каїрбай Базарбеков

Павлодарський педагогічний університет
140000, вул. Миру, 60, м. Павлодар, Республіка Казахстан

Наталія Тарасовська

Павлодарський педагогічний університет
140000, вул. Миру, 60, м. Павлодар, Республіка Казахстан

Шолпан Хамзіна

Павлодарський педагогічний університет
140000, вул. Миру, 60, м. Павлодар, Республіка Казахстан

Жаркын Кабдолов

Павлодарський педагогічний університет
140000, вул. Миру, 60, м. Павлодар, Республіка Казахстан

Анотація

Актуальність. У сучасному Казахстані питання багатомовної освіти є як ніколи актуальним в системі освіти. Ефективна підготовка майбутніх вчителів, здатних працювати з різними мовними та культурними групами учнів, є ключовим завданням для забезпечення якісної освіти.

Мета. Мета дослідження - з'ясувати сучасний рівень мотивації студентів до набуття багатомовних компетенцій, а також виявити проблеми, що перешкоджають розвитку інтеграції регіонального компонента в програму багатомовної підготовки майбутніх учителів біології в Казахстані.

Методологія. З цією метою було проведено опитування серед студентів другого курсу біологічного факультету Костанайського обласного університету ім. А. Байтурсинова у 2023-2024 навчальному році.

Результати. За результатами опитування, проведеного серед студентів другого курсу, можна побачити, що в цілому студенти оцінюють свою мультилінгвальну компетентність на середньому рівні та мають мотивацію до її розвитку. Порівняльний аналіз показав, що рівень мотивації студентів у цьому питанні не змінився порівняно з попереднім навчальним роком. Для досягнення позитивної динаміки варто врахувати успішний досвід Сербії у питанні підготовки вчителів, а також наголосити на більш нагальних проблемах, які залишаються невирішеними, зокрема доступ до методичних матеріалів різними мовами та недостатнє фінансування проектів у цій сфері.

Висновки. Проведене дослідження допоможе в майбутньому розробити успішні методи та стратегії, які можуть бути адаптовані для використання в Казахстані. Рекомендації можуть бути використані для вдосконалення методів викладання та збагачення освітніх програм. Це сприяє створенню більш інклюзивного та адаптованого освітнього середовища, яке враховує різноманітність мов і культур Казахстану, що сприятиме підвищенню якості освіти та збереженню багатомовної спадщини.

Ключові слова: педагогіка; середня школа; мотивація; екологія; адаптація; культура.