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A. Makhadiyeva[1]*, A. Makhadiyeva[2], G. Eszhanova[2]

[1] L.N. Gumilyov Eurasian National University, Astana, Kazakhstan
[2] Shymkent University, Shymkent, Kazakhstan
assel.karatayres@gmail.com

INNOVATIVE TECHNOLOGIES AS A MEANS OF DEVELOPING THE METHODOLOGICAL COMPETENCE OF FUTURE TEACHERS IN AN INCLUSIVE PROCESS

Annotation. *This article examines the problems of developing the methodological competence of future teachers and modern ways of implementing them. The study was conducted with the aim of scientifically identifying effective ways of using innovative technologies for the optimal integration of future teachers into the inclusive process. A set of research methods and materials (analysis of scientific and regulatory literature, generalization and comparative pedagogical analysis, pedagogical experiment with elements of questioning, observation, analysis, statistical methods, and expert interviews) aimed at achieving the set goals and objectives of the study were used. Their application made it possible to study the issues in detail. The results of the diagnosis of changes using two methods showed the high effectiveness of innovative technologies in the development of students' methodological competence. Their use in the experimental group showed better results both in the acquisition of theoretical knowledge and in the application of pedagogical approaches based on modern inclusive technologies. The hypothesis about the positive impact of innovative technologies on the formation of methodological competence of future teachers has been statistically confirmed. Additionally, the use of innovative technologies has a statistically significant connection with increasing the level of methodological competence and readiness for work of future teachers in the conditions of inclusive education. Practical recommendations have been developed for students of pedagogical specialties on the optimal implementation of innovative technologies for the formation of methodological competencies required for inclusive education.*

Keywords: *innovative education, methodological competence, innovative technologies, future teachers, teaching methodology.*

Introduction

Modern Kazakhstani society places high demands on the level of professionalism of teaching staff, given the active development of inclusive education. It should be noted that in 2021, amendments and additions were made to certain legislative acts in the field of education on issues of inclusion [1]. All this indicates that the state has taken on the responsibility of creating the necessary conditions for children with special educational needs, taking into account their individuality. This approach has become a challenge for

modern teacher training, which requires the preparation of future teachers with specially developed methodological competence in relation to inclusion. It is necessary to train teachers who are able to successfully implement the principles of inclusive education and thereby provide children with special educational needs with quality education. However, the practice of existing teacher education shows that traditional approaches to teacher training are not effective enough. They do not take into account that in the context of modern education, there are a large number of students with diverse educational needs at the secondary education level. There is a need for continuous professional development of teachers working with children with special educational needs (hereinafter referred to as SEN).

The relevance of the research topic is determined by the following factors.

First, there is a steady trend toward an increase in the number of students with SEN, which increases the responsibility of teachers and requires them to master modern teaching methods and technologies.

Second, there is a lack of modern methodological developments and techniques in the education system that could effectively integrate innovative technologies into the educational process. Traditional subject curricula do not always take into account the real needs of inclusive practice, which means that the level of training of future teachers to solve complex professional inclusive problems does not meet existing needs.

Despite significant efforts by researchers in the field of applying innovative technologies in inclusive education, the degree of development of the issue under consideration remains unsatisfactory. It should be noted that certain aspects of the application of digital tools in the context of inclusion have been considered in a number of Kazakhstani and foreign publications. However, there has been insufficient comprehensive research aimed at identifying and substantiating effective ways of developing the methodological competence of future teachers in the context of inclusive education. This circumstance confirms the scientific novelty of the present study, which aims to fill the identified gap.

The aim of our study is to scientifically identify effective ways of applying innovative technologies in inclusive education and to develop practical recommendations for students of pedagogical specialties on their optimal integration.

The object of the study is the educational process of training future teachers in higher education institutions. The subject of the study is defined as innovative technologies as a means of developing the methodological competence of students majoring in pedagogy.

The methodological basis of this study is a set of theoretical and empirical methods selected in such a way as to ensure a deep understanding of the peculiarities of the formation of methodological competence of future teachers in the context of the application of innovative technologies.

The research hypothesis assumes that the use of innovative technologies in the educational process of university training has a significant positive impact on the formation of methodological competence of future teachers, increasing their readiness for successful professional activity in the conditions of inclusive education.

The practical significance of the study is determined by the possibility of directly implementing the results obtained in the teacher training system, which will improve the quality of professional training of future teachers and strengthen their competitive advantages in the modern labor market.

Materials and methods

The methodological basis of the study is represented by a set of theoretical and empirical methods selected to provide a deeper understanding of the peculiarities of the formation of methodological competence of future teachers in the context of the application of innovative technologies.

The theoretical research methods included: analysis of scientific literature; regulatory and legal analysis; generalization and synthesis of pedagogical experience; comparative pedagogical analysis.

Empirical research methods: a pedagogical experiment with elements of a survey, observation, analysis, statistical methods, and expert interviews. The experimental study is conducted at the L.N. Gumilyov Eurasian National University. The sample includes 50 second-year students of educational programs in the field of "Education", divided into two groups: experimental (25 people) and control (25 people). A pedagogical experiment is being conducted to record changes in the level of methodological competence of participants before and after the training of students using innovative technologies within the framework of the training course "Methods of teaching children with special educational needs in inclusive education." The level of competence is assessed using two valid diagnostic methods, and the results are processed with detailed statistical analysis.

The first study was conducted based on the assessment of knowledge and skills in the field of special education. It aimed to determine the extent to which the principles of teaching in the field of methodological work with students are implemented in higher education institutions for further use with students with special educational needs. For this purpose, a special test was used for comprehensive diagnosis of the methodological competence of second-year students in the field of special education and inclusive education. It includes: theoretical knowledge in the field of special education; the ability to apply psychological and pedagogical approaches to teaching and educating children with SEN; mastery of modern inclusive technologies and teaching methods. The structure of the test is based on three types of tasks: closed questions (choosing one correct answer); open questions (short free answer); situational tasks (simulating real pedagogical situations). The assessment criteria are shown in the table 1.

Table 1 – Test assessment criteria

	High: 75% + correct answers	**Average: 50%-74% correct answers**	**Low: less than 50% correct answers**
Theoretical knowledge in the field of special education	Students demonstrate a deep understanding of special education theory, are confident in their use of terminology, and are able to explain key concepts and principles.	Basic knowledge is present, but there are some gaps and inaccuracies in the understanding of certain categories and provisions.	Insufficient level of theoretical knowledge, significant gaps, inability to clearly explain basic concepts.
Ability to apply psycho-logical and pedagogical approaches to teaching and educating children with SEN	Ability to competently apply psychological and pedagogical approaches, demonstrate informed choice of proposed methods and techniques	Partially cope with the application of methods, minor errors and uncertainty in choosing appropriate solutions are allowed.	Difficulty in applying psychological and pedagogical approaches, often choosing the wrong strategies.
Proficiency in modern inclusive technologies and teaching methods	Proficient in a variety of inclusive technologies, successful in modeling situations and solving case studies	Have an understanding of modern technologies, but experience difficulties in their practical application and analysis of situations.	Lack of knowledge or poor knowledge of modern inclusive technologies, inability to solve practical problems
The final assessment is determined by the average value across all three areas: High level: average value ≥ 75% Average level: average value between 50% and 74% Low level: average value < 50%.			

This approach allows us to determine the degree of methodological readiness of students for future professional activity in the context of inclusive education and to identify areas for development in university training.

The second study was conducted according to the methodology “Diagnosis of teachers’ readiness to work with children with SEN” (author N.L. Tyulpanova). The aim was to establish the level of readiness of future teachers to work in inclusive settings with children with SEN. The study used questionnaires with 30 questions, each with 3-4 possible answers. The results were interpreted using a special key, which allowed the level of preparedness of future teachers to be classified as high, medium, or low.

Additional objectivity was added to the assessment results by expert interviews conducted with individuals professionally involved in special schools, allowing for an

assessment of the real increase in methodological competence among future teachers (provided that they undergo practical training or come to work as young teachers).

The materials for the experimental study were questionnaires, survey forms, and research reports.

Methods of mathematical statistics (descriptive statistics, correlation and regression analyses) were applied using the IBM SPSS Statistics program. They made it possible to test the statistical significance between indicators and confirm or refute the research hypothesis.

The following groups of specialists (8 people from each group) were involved in the expert interviews:

– deputy heads of special schools, they have a deep understanding of the specifics of working with children with SEN and can assess general trends and dynamics of changes in the methodology of training future teachers;

– psychologists, as they have information about the psychological component of inclusive education and possess data on changes in the behavior and attitudes of future teachers;

– representatives of methodological offices and centers for the development of inclusive education, as they provide practical methodological assistance to children with SEN and actively use innovative technologies;

– university teachers, they can give an objective assessment of the effectiveness of the technologies used and the process of their use in the university. This is because they are involved in shaping the methodological competence of students and can compare the level of training of past and current students.

The questions for the expert interview include five blocks: assessment of the initial level of training of future teachers; changes in methodological competence; working with innovative technologies; interaction with participants in the educational process; assessment of the effectiveness of the new program. The use of the listed experts and questions is aimed at gathering more complete and objective information about the effectiveness of innovative technologies in training future teachers to work in inclusive education and identifying key factors that influence the quality of their professional training.

The comprehensive application of the specified methods and materials is aimed at achieving the set goals and objectives of the study. Their use made it possible to ensure the completeness and detail of the study of the issues raised and to develop practical recommendations.

Results and discussion

The materials for the literary analysis were sourced from domestic and foreign sources. These included scientific articles, monographs, dissertations, and other

official contemporary research by Kazakhstani and foreign scientists and experts. The main sources were scientific articles by Kazakhstani authors over the past five years: M.B. Turlubekova [2], S.A. Uzakbaeva [3], A. Shadyrova [4], R.Zh. Aubakirova [5] and P.Zh. Parmankulova [6]. These articles examine the characteristics of inclusive education in Kazakhstan and the possibilities for its further development, current issues and directions for the development of inclusive education, ways of organizing inclusive education, and specific aspects of teachers' attitudes towards the introduction of inclusive education in general education schools. It is also worth noting the works on digitalization and inclusive education by A.K. Krykbaeva [7], H. Dikici, B.B. Sikinbayev [8], A.D. Zhumageldieva [9] and others. Foreign sources were also used: D. Guillén-Martínez [10] on contradictions and opportunities in inclusive education, C. Del Rosario Navas-Bonilla on contemporary changes in the development of inclusive education systems [11], on the human right to inclusive education, S. Bulathwela [12] on evidence of inclusive education and artificial intelligence, and V. Méndez [13] on the practice of preparing teachers for inclusive education. All of them made it possible to define the essence and structure of a teacher's methodological competence in the field of inclusive education, as well as to identify key trends and unresolved issues in the application of innovative technologies in teacher education in terms of inclusion.

The materials for the regulatory and legal analysis were legislative and regulatory documents of the Republic of Kazakhstan (Laws of the Republic of Kazakhstan "On Education", "On Special Social Services", Concept of Inclusive Policy in the Republic of Kazakhstan for 2025–2030, "Model Rules for the Activities of Special Education Organizations", the Law of the Republic of Kazakhstan "On Social and Medical-Pedagogical Correctional Support for Children with Disabilities", and amendments and additions to legislative acts in the field of education on issues of inclusion. All of these regulate the processes of inclusive education and show in which areas inclusive education and teacher training can be developed.

A collection of best practices [14] became a source of summarizing and synthesizing pedagogical experience of best practices in the implementation of innovative technologies in inclusive education. They made it possible to form an idea of promising directions for the modernization of the educational process in higher education institutions.

The comparative pedagogical analysis was based on studies of examples used in foreign countries, based on reports from leading countries in the field of inclusive education, such as the United States, the United Kingdom, Finland, Canada, and Sweden, which made it possible to identify differences and common features in approaches to the formation of teachers' methodological competence. They made it possible to select the most effective strategies and techniques corresponding to the goals and objectives of this study [15; 16].

Based on a review of scientific publications, it has been established that a teacher's methodological competence in the field of inclusive education should be considered part of their professional competence. This is on the condition that it is characterized by specific personal characteristics and skills that are required when working with children with SEN. It should also be considered as the integration of three interdependent elements that make up its structure:

1) Motivational and value competence, which includes motives, personal interests, goals, and values related to future professional activities in an inclusive environment;

2) Cognitive competence, which encompasses a sufficient level of thinking in the field of professional knowledge and is expressed in teaching methods and general pedagogy. Provided that it is adapted for effective application in inclusive educational processes;

3) Organizational and practical competence is represented by a wide range of practical skills and abilities of future teachers, included in the unified educational process of higher education institutions. Provided that they contribute to their relatively successful integration into further work with students with special educational needs.

Other approaches are also noted: a personal component reflecting the personal qualities required when working with children with SEN; a psychological component showing psychological readiness to work with such children; a motivational component, indicating a desire for self-development in relation to inclusion and innovative activities; an activity component, indicating the development of skills for conducting the educational process in conditions of inclusion.

One of the most important conditions for the formation and further improvement of methodological competence in future teachers in the context of inclusive education is the positive perception of the concept of inclusion itself by future teachers, with a strong internal motivation to develop and implement inclusive educational practices.

The methodological preparation of future teachers for working in inclusive settings should take place in stages at the university: informational readiness is formed; psychological preparation is determined; professional competence is established.

A special training program for future teachers has been developed as part of the course "Methods of teaching children with special educational needs in inclusive education". It includes innovative technologies for developing the methodological competence of future teachers (Table 2).

This methodology has been tested in an experimental group.

The results of testing the level of methodological competence of students in the experimental and control groups before and after training using innovative technologies are shown in Table 3.

Table 2 – Training program for future teachers in inclusive education, using innovative technologies

Element of methodological competence	Innovative technologies	Form of implementation	Planned results
Motivational and value competence	Video lectures, online discussions, virtual tours	Webinar, discussion, viewing videos	Forming a positive attitude toward inclusion, understanding the values and motivations of working with children with special educational needs
Cognitive competence	Interactive tests, electronic textbooks, online consultations	Independent work, testing, teacher consultation	Deepening knowledge of teaching methods and the characteristics of inclusive education
Organizational and practical competence	Simulation games, virtual simulations, case studies	Practical classes, group work, analysis of real-life situations	Development of practical skills for working with children with special educational needs, ability to apply knowledge in practice
Personal component	Psychological training, reflective journals, video dialogues	Training, written reflection, video recording of discussions	Development of personal qualities necessary for working with children with SEN
Psychological component	Online testing, psychological quests, virtual consultations	Testing, quest completion, psychologist consultation	Increasing psychological readiness to work with children with SEN
Motivational component	Webinars, master classes, creative competitions	Viewing webinars, attending master classes, participating in contests	Strengthening motivation for self-development and innovative activities in the context of inclusion
Activity component	Simulated lessons, virtual classrooms, online planners	Practical training, lesson modeling, lesson planning	Improving teaching skills in an inclusive environment
Integrative stage	Project presentations, portfolios, online defense	Project defense, portfolio design, public speaking	Comprehensive demonstration of all components of methodological competence

Table 3 – Results of changes in the level of methodological competence of students (n=25), in percent

Focus/levels	High		Average		Low	
	Start	End	beginning	End	beginning	End
Experimental group						
Theoretical knowledge	20	40	55	48	25	12
Application of approaches	16	44	56	44	28	12
Technology skills	10	40	60	44	31	15
Control group						
Theoretical knowledge	20	25	52	50	28	25
Application of approaches	15	20	60	60	25	20
Technology skills	12	15	60	60	28	25

At the initial stage of the experiment, both groups showed similar results in all areas of methodological competence, which indicates that the initial level of training of the experiment participants was approximately the same. A limited number of students (20%) had a high level of theoretical knowledge in special education. Most students had an average level based on basic awareness and general understanding. The remaining students (25% and 28%) had insufficient theoretical knowledge. The ability to apply psychological and pedagogical approaches to teaching and educating children with SEN is similar. These indicators are the same as in the previous point. Only 15-16% of students are able to apply them competently, most (56-60%) are partially able, and 28% are unable. The weakest indicator among all areas is technology proficiency, as only 10-12% of students have a high level of proficiency, 60% have an average level, and 28-31% have a low level.

A comparative analysis showed that, according to all indicators, significant positive dynamics were observed in the experimental group. In the EG, there was a significant increase in the proportion of students with a high level of theoretical knowledge (from 20 to 40%). The number of students with a low level decreased by half (from 25% to 12%). Meanwhile, in the CG, the changes were minimal: the proportion of students with a high level increased by 5%, and those with a low level decreased by 3%. In the area of applying approaches, the EG also saw an increase in the number of students with a high level (from 16% to 44%), while the number of students with a low level decreased from 28% to 12%. The CG saw insignificant changes: the proportion of students with a high level increased from 15% to 20%, while the number of students with a low level also decreased by 5%. In terms of technology proficiency, the proportion of students with a high level in the EG increased fourfold (from 10% to 40%), while the proportion of students with a low level decreased almost twice (from 31% to 15%). There were also minimal changes

in the control group: 3%. Overall, a comparative analysis of the final indicators showed significant progress in the experimental group in all areas of methodological competence, with particularly noticeable dynamics in the increase in the proportion of students with a high level and a decrease in the proportion of students with a low level. The control group showed limited dynamics of change, maintaining predominantly average and low levels of methodological competence.

Thus, the results obtained clearly indicate the high effectiveness of innovative technologies in the development of students' methodological competence. The use of innovative approaches has led to significant successes in the acquisition of theoretical knowledge, the application of pedagogical approaches, and the mastery of modern inclusive technologies. These data confirm the necessity and expediency of introducing innovative methods into the educational process of training future teachers for inclusive education.

The results of the study using the "Diagnosis of teachers' readiness to work with children with SEN" methodology are shown in Table 4.

Table 4 – Results of changes in the degree of readiness of teachers to work with children with SEN (n=25), in percent

Level of training	Experimental group		Control group	
	At the beginning	At the end	At the beginning	At the end
High	10	32	10	16
Medium	56	52	54	56
Low	34	16	36	28

Analysis of the results showed that the groups had approximately the same indicators at the beginning. At the end of the experiment, the students in the experimental group showed a significant increase in the proportion of teachers with a high level of readiness (by 22%), while the proportion of future teachers with a low level decreased by 18%, which indicates a positive impact of the technologies used on them. At the same time, the control group showed a slight increase in the proportion of students with a high level (by 4%) and a decrease in those with a low level (by 8%).

Thus, the results of the comparative analysis show a noticeable improvement in the level of readiness of teachers to work with children with special educational needs in the experimental group, which confirms the effectiveness of the proposed methodological measures. The results in the control group are less pronounced due to the lack of specific innovative pedagogical technologies.

Correlation analysis, using Spearman's correlation coefficient (ρ), made it possible to assess: the relationship between the use of innovative technologies and the improvement of methodological competence, which is equal to ρ=+0.82, indicating a very strong direct relationship; the relationship between the use of innovative technologies and a decrease in low methodological competence, ρ=−0.78, also a very strong but inverse relationship. The coefficients exceed the threshold of statistical significance ($p<0.05$), confirming a strong direct relationship between the use of innovative technologies and an increase in methodological competence.

Regression analysis aimed at establishing the influence of innovative technologies on the level of methodological competence using a multiple linear regression model: Y=a+bX+e. The calculations showed that the coefficient b is statistically significant, since ($p<0.05$), which means that each unit of increase in the intensity of use of innovative technologies is associated with a significant increase in the level of methodological competence.

Thus, the statistical data confirmed the hypothesis. The use of innovative technologies in the educational process of university training does indeed have a significant positive impact on the formation of methodological competence of future teachers. The use of innovative technologies has a statistically significant relationship with an increase in the level of methodological competence and readiness to work in the conditions of inclusive education.

The results of interviews with experts are reflected in Table 5.

Table 5 – Results of expert interviews, in percentages

Interview questions	Deputy managers	Psychologists	Representatives of the method. offices	University professors
Insufficient initial level of training for future teachers	80	50	37.5	50
Positive changes in methodological competence are noted	75	75	87	87
More confident work with innovative technologies	75.0			87
Improved interaction with participants in the educational process	50		75	
Effectiveness of the new program	75	81.3	93.8	93.8

Based on the data from the expert survey, it was found that all groups of experts unanimously agreed that the initial level of training for future teachers is insufficient. The highest scores were given by principals and deputy principals of specialized schools. Such

assessments indicate serious problems in the traditional training of students to work with children with SEN. All groups of experts noted positive changes in the methodological competence of future teachers. Representatives of methodological offices and university teachers scored particularly high (87.5%), which indicates the effectiveness of new educational approaches and methods. Most experts noted that future teachers were more confident in working with innovative technologies. The highest scores (87.5%) were given by representatives of methodological offices and university teachers, which emphasizes the importance of introducing innovative technologies into the university educational process. School principals and methodologists (to a greater extent) noted an improvement in the interaction of future teachers with participants in the inclusive educational process. All groups of experts highly rated the effectiveness of the new program. Particularly high ratings (93.8%) were given by representatives of methodological offices and university teachers, which confirms the successful introduction of innovative technologies into the university education process. Thus, the results obtained from the experts allow us to note that the introduction of innovative technologies into the process of training future teachers is an effective solution. The application of new methods can bring about positive changes in the methodological competence of future teachers for working in inclusive environments.

This study differs from previous works in its expanded approach to defining the structure of methodological competence. It was conducted within the framework of classical and additional elements, which made it possible to show in the program the broader requirements imposed on future teachers in the training process in terms of inclusive education. Previous studies usually consider innovative technologies without taking into account their impact on the formation of methodological competence in future teachers as a practical tool that contributes to higher-quality professional training for teachers who will work in inclusive settings.

Conclusion

The main elements of the methodological competence of future teachers in the context of inclusive education have been identified, the most important conditions for its formation and further improvement have been highlighted, and the sequence of implementation in higher education institutions has been determined. A special training program has been developed as part of the course “Methods of teaching children with special educational needs in inclusive education.” It includes innovative technologies for the formation of methodological competence of future teachers in this field. The results of the diagnosis of changes indicate the high effectiveness of innovative technologies in the development of students’ methodological competence. The use of innovative approaches in the experimental group led to significant success in the acquisition of theoretical knowledge, the application of pedagogical approaches, and the mastery of

modern inclusive technologies. Two types of statistical analysis confirmed the hypothesis about the positive impact of innovative technologies on the formation of methodological competence in future teachers. The use of innovative technologies has a statistically significant connection with an increase in the level of methodological competence and readiness for work of future teachers in the conditions of inclusive education. All the data collected confirm the relevance and necessity of further development and dissemination of innovative approaches in the training of future teachers in higher education institutions to ensure their effective work in the conditions of inclusive education.

Practical recommendations for students of pedagogical specialties on the optimal integration of innovative technologies as a means of forming methodological competencies in the field of inclusive education:

1. To develop motivational and value-based competencies, you can also use video lectures and webinars that discuss the humanistic nature of inclusive education and the success stories of teachers and children with SEN. It is important to review forums and discussions that explore the meaning and value of inclusion and share the personal experiences of teachers.

2. To develop cognitive competence, it is recommended to work more with interactive textbooks and presentations (containing the latest publications and research on inclusive education). Electronic tests are also useful, as they allow you to test your knowledge of teaching methods in an inclusive environment.

3. To develop organizational and practical competence, it is necessary to participate more actively in simulation lessons and classes that model different situations of interaction with students with SEN. It is necessary to solve more case studies and situational tasks that offer various options for action in situations close to reality.

4. To develop the personal component, it is recommended to undergo special psychological training and keep reflective journals, recording emotions and experiences related to completing tasks in an inclusive environment.

5. To develop the psychological component, it is necessary to undergo regular online testing to demonstrate psychological readiness to work with children with SEN. It is also advisable to complete psychological quests and exercises in the field of inclusion psychology.

6. To develop the motivational component, it is recommended to participate in creative competitions and master classes on self-development in innovative activities. It is recommended to compile a portfolio of your achievements and plans for the future.

7. To develop the practical component, it is necessary to simulate lessons that will be conducted virtually using digital teaching materials. It is recommended to participate more actively in project activities, which will also allow you to create your own methods and techniques for working with children with SEN.

By following these recommendations, future teachers will be able to use innovative technologies to more effectively form and develop their methodological competencies. Thus, university education will make them more prepared for successful professional activity in the context of inclusive education.

Contribution of the authors:

A. Makhadiyeva – the first author conceptualized the study and developed its theoretical and methodological framework. Makhadiyeva formulated the key provisions on the use of innovative technologies in teacher training, particularly for inclusive education. She systematically analyzed international and national regulatory and legal documents governing inclusive education and integrated these into the study. She also conducted a detailed analysis of strategic and programmatic documents to identify priority areas for developing inclusive practices. Additionally, Makhadiyeva developed a methodology for assessing the effectiveness of innovative technologies by engaging various experts, including university faculty, practicing teachers, and specialists in psychological and pedagogical support.

A. Makhadiyeva – the second author contributed significantly to the empirical part of the study. Mahadiyeva was responsible for organizing and conducting the data collection among the target groups and ensuring the representativeness of the sample. She processed and systematized expert assessments using qualitative and quantitative methods, which enabled the identification of key factors influencing the quality of teacher training for inclusive education. She conducted a comparative analysis of theoretical knowledge and practical competencies among graduates of teacher training programs and developed a system of criteria for evaluating the effectiveness of innovative technologies in teacher education.

G. Eszhanova – the third author assisted in the implementation of the study by conducting expert interviews and collecting data for the study. Eszhanova contributed to the evaluation of innovative teaching methods and technologies from a practical standpoint. She helped develop the training program that incorporated innovative technologies for future teachers in inclusive education and contributed to the creation of practical recommendations for the optimization of the professional training system based on the study's findings.

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А.К. Махадиева[1]*, А.К. Махадиева[2], Г.С. Есжанова[2]
[1] Л.Н. Гумилев атындағы Еуразия ұлттық университеті, Астана, Қазақстан
[2] Шымкент университеті, Шымкент, Қазақстан

Инновациялық технологиялар болашақ мұғалімдердің инклюзивті процеске әдістемелік құзыреттілігін дамыту құралы ретінде

Аннотация. Мақалада болашақ мұғалімдердің әдістемелік құзыреттілігін дамыту мәселелері және оларды жүзеге асырудың заманауи әдістері қарастырылады. Зерттеу болашақ мұғалімдерді инклюзивті процеске оңтайлы интеграциялау үшін инновациялық технологияларды қолданудың тиімді әдістерін ғылыми негіздеу мақсатында жүргізілді. Зерттеудің мақсаттары мен міндеттеріне қол жеткізу үшін зерттеу әдістері мен материалдарының кешені қолданылды (ғылыми және нормативтік әдебиеттерді талдау, жалпылау және салыстырмалы педагогикалық талдау, сауалнама, бақылау, талдау, статистикалық әдістер мен сараптамалық сұхбат элементтерімен педагогикалық эксперимент). Оларды қолдану қойылған мәселелерді егжей-тегжейлі зерттеуге мүмкіндік берді. Екі әдісті қолдана отырып, Өзгерістерді диагностикалау нәтижелері студенттердің әдістемелік құзыреттілігін дамытуда инновациялық технологиялардың жоғары тиімділігін көрсетті. Оларды эксперименттік топта қолдану теориялық білімді игеруде де, қазіргі заманғы инклюзивті технологияларға негізделген педагогикалық тәсілдерді қолдануда да жақсы нәтижелер көрсетті. Инновациялық технологиялардың болашақ мұғалімдердің әдістемелік құзыреттілігін қалыптастыруға оң әсері туралы Гипотеза статистикалық расталды. Сонымен қатар инновациялық технологияларды қолдану инклюзивті білім беру жағдайында болашақ мұғалімдердің әдістемелік құзыреттілігі мен жұмысқа дайындығының деңгейін арттырумен статистикалық маңызды байланысқа ие. Инклюзивті білім беру үшін қажетті әдістемелік құзыреттіліктерді қалыптастыру үшін инновациялық технологияларды оңтайлы енгізу бойынша педагогикалық мамандықтардың студенттері үшін практикалық ұсынымдар әзірленді.

Кілтті сөздер: инновациялық білім, әдістемелік құзыреттілік, инновациялық технологиялар, болашақ мұғалімдер, оқыту әдістемесі.

А.К. Махадиева[1]*, А.К. Махадиева[2], Г.С. Есжанова[2]
[1] Евразийский национальный университет имени Л.Н. Гумилева,
Астана, Казахстан
[2] Университет Шымкент, Шымкент Казахстан

Инновационные технологии как средство развития методической компетентности будущих учителей в инклюзивный процесс

Аннотация. В статье рассматриваются проблемы развития методической компетентности будущих учителей и современные способы их реализации. Исследование проводилось с целью научного обоснования эффективных способов использования инновационных технологий для оптимальной интеграции будущих учителей в инклюзивный процесс. Для достижения поставленных целей и задач исследования был использован комплекс исследовательских методов и материалов (анализ научной и нормативной литературы, обобщение и сравнительный педагогический анализ, педагогический эксперимент с элементами опроса, наблюдения, анализа, статистических методов и экспертных интервью). Их применение позволило детально изучить поставленные вопросы. Результаты диагностики изменений с использованием двух методов показали высокую эффективность инновационных технологий в развитии методической компетентности студентов. Их использование в экспериментальной группе показало лучшие результаты как в освоении теоретических знаний, так и в применении педагогических подходов, основанных на современных инклюзивных технологиях. Гипотеза о положительном влиянии инновационных технологий на формирование методической компетентности будущих учителей была статистически подтверждена. Кроме того, использование инновационных технологий имеет статистически значимую связь с повышением уровня методической компетентности и готовности к работе будущих учителей в условиях инклюзивного образования. Разработаны практические рекомендации для студентов педагогических специальностей по оптимальному внедрению инновационных технологий для формирования методических компетенций, необходимых для инклюзивного образования.

Ключевые слова: инновационное образование, методическая компетентность, инновационные технологии, будущие учителя, методика преподавания.

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Information about authors:

Makhadiyeva Assel *– a corresponding author, PhD, Acting Associate Professor, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan. Tel. +77010799889, E-mail: assel.karatayres@gmail.com. ORCID: https://orcid.org/0000-0003-3679-8950*

Makhadiyeva Assem *– PhD, Senior lecturer, Shymkent University, Shymkent, Kazakhstan. E-mail: asema_2189@mail.ru. ORCID: https://orcid.org/0000-0002-5409-9523*

Eszhanova Gulsim *– Master of Science, Shymkent University, Shymkent, Kazakhstan. E-mail: gulsim.yeszhanova@mail.ru. ORCID: https://orcid.org/0009-0008-5637-5369*

Авторлар туралы мәліметтер:

Махадиева Асель Каратаевна *– хат-хабар авторы, PhD, доцент м.а., Л.Н. Гумилев атындағы Еуразия ұлттық университеті, Астана, Қазақстан. Tel. +77010799889, E-mail: assel.karatayres@gmail.com. ORCID: https://orcid.org/0000-0003-3679-8950*

Махадиева Асем Каратаевна *– PhD, аға оқытушы, Шымкент университеті, Шымкент, Қазақстан. E-mail: asema_2189@mail.ru. ORCID: https://orcid.org/0000-0002-5409-9523*

Есжанова Гульсим Сапарбековна *– магистр, Шымкент университеті, Шымкент, Қазақстан. E-mail: gulsim.yeszhanova@mail.ru. ORCID: https://orcid.org/0009-0008-5637-5369*

Информация об авторах:

Махадиева Асель Каратаевна *– автор корреспонденции, PhD, и.о. доцента, Евразийский национальный университет имени Л.Н. Гумилева, Астана, Казахстан. Tel. +77010799889, E-mail: assel.karatayres@gmail.com. ORCID: https://orcid.org/0000-0003-3679-8950*

Махадиева Асем Каратаевна *– PhD, старший преподаватель, Университет Шымкент, Шымкент, Казахстан. E-mail: asema_2189@mail.ru. ORCID: https://orcid.org/0000-0002-5409-9523*

Есжанова Гульсим Сапарбековна *– магистр, университет Шымкент, Шымкент, Казахстан. E-mail: gulsim.yeszhanova@mail.ru. ORCID: https://orcid.org/0009-0008-5637-5369*