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DEVELOPING OF PROJECT COMPETENCE IN FUTURE PRIMARY SCHOOL TEACHERS

Abstract

This study explores the development of project competence in future primary school teachers, highlighting its importance in modern educational practices. As a key component of professional teacher development, project competence enables educators to organize and lead project-based activities, which are essential for fostering critical thinking, independence, and creativity in students. This research aims to address this gap by analyzing the current state of project competence development and offering recommendations for enhancing this crucial skill among future educators. The survey method was employed to collect the data from university teachers. The concept of project competence has been analyzed as a multifaceted skill set encompassing the ability to design and implement projects, to engage in teamwork, and develop problem-solving strategies. The study emphasizes the need for primary school teachers to master project-based learning methodologies to effectively integrate subject knowledge, adapt to modern school requirements, and to innovate educational programs. The authors of this study believe that universities should establish supportive environments to foster the development of project competence in future primary school teachers.

Keywords: project competence, primary school teachers, professional training, project-based activities.

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БОЛАШАҚ БАСТАУЫШ МЕКТЕП МҰҒАЛІМДЕРІНІҢ ЖОБАЛЫҚ ҚҰЗЫРЕТТІЛІКТЕРІН ДАМЫТУ

Аңдатпа

Бұл зерттеу болашақ бастауыш мектеп мұғалімдерінің жобалық құзыреттіліктерін дамытуды зерттейді, оның қазіргі білім беру тәжірибесіндегі маңыздылығын атап өтеді. Педагогтардың кәсіби дамуының маңызды құрамдас бөлігі ретінде жобалық құзыреттілік мұғалімдерге жобалық іс-шараларды ұйымдастыруға және жүргізуге мүмкіндік береді, ал бұл оқушылардың сыни ойлау, тәуелсіздік және шығармашылық қабілеттерін дамыту үшін қажет. Бұл зерттеу жобалық құзыреттілікті дамыту жағдайын талдап, болашақ педагогтар арасында осы маңызды дағдыны арттыру үшін ұсыныстар ұсына отырып, осы олқылықты жоюды мақсат етеді. Мәліметтер университет мұғалімдерінен сауалнама әдісі арқылы жиналды. Жобалық құзыреттілік ұғымы жобаларды жобалау және іске асыру қабілетін, командалық жұмыста қатысуды және мәселені шешу стратегияларын әзірлеуді қамтитын көп қырлы дағды ретінде талданды. Зерттеу бастауыш мектеп мұғалімдеріне жобалық оқыту әдістемелерін меңгерудің маңыздылығын атап өтеді, себебі бұл пән білімін тиімді біріктіруге, қазіргі мектеп талаптарына бейімделуге және білім беру бағдарламаларын жаңғыртуға мүмкіндік береді. Бұл зерттеудің авторлары университеттер болашақ бастауыш мектеп мұғалімдерінде жобалық құзыреттілікті дамытуға қолдау көрсететін орта құруы қажет деп санайды.

Түйін сөздер: жобалық құзыреттілік, бастауыш мектеп мұғалімдері, кәсіби дайындық, жобалық іс-шаралар.

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РАЗВИТИЕ ПРОЕКТНОЙ КОМПЕТЕНЦИИ У БУДУЩИХ УЧИТЕЛЕЙ НАЧАЛЬНЫХ КЛАССОВ

Аннотация

Это исследование посвящено развитию проектной компетенции у будущих учителей начальных классов, подчеркивая её важность в современных образовательных практиках. Как ключевой компонент профессионального развития учителей, проектная компетенция позволяет педагогам организовывать и руководить проектной деятельностью, что необходимо для развития критического мышления, независимости и креативности у обучающихся. Целью исследования является анализ текущего состояния развития проектной компетенции и предоставление рекомендаций по улучшению этого важного навыка у будущих педагогов. Для сбора данных был использован метод опроса среди преподавателей университетов. Концепция проектной компетенции была проанализирована как многогранный набор навыков, включающий способность разрабатывать и реализовывать проекты, работать в команде и разрабатывать стратегии решения проблем. Исследование подчеркивает необходимость овладения методологиями проектного обучения для эффективного интегрирования знаний по предмету, адаптации к современным требованиям школы и инновации образовательных программ. Авторы исследования считают, что университеты должны создавать поддерживающую среду для развития проектной компетенции у будущих учителей начальных классов.

Ключевые слова: проектная компетенция, учителя начальных классов, профессиональная подготовка, проектная деятельность.

Introduction. A modern teacher, as a key figure in the educational reform process, must possess high qualifications, appropriate personal qualities, be adaptable, able to handle non-standard situations, and demonstrate responsibility in decision-making. In accordance with the requirements of the professional standard for teachers, one of the most important aspects of their professional activity is the organization of their own work design and the willingness to lead students' project activities. [1] In this regard, it is crucial to work on the development of project competence in future primary school teachers.

The development of project competence in future primary school teachers is necessary in order to improve the quality of their professional training. Mastering project methods allows future teachers to organize the educational process, to develop independence and to be able to work in a team if primary school students. In addition, project activities contribute to the integration of various subject knowledge, making learning more practice-oriented and interesting for children. This also helps the teacher adapt to the requirements of a modern school, develop and implement innovative educational programs, which makes thier work more effective and in demand.

The following researchers T.B.Berdimuratov, J.S.Krajcik, N.V.Matyash, A.T.Onalbayeva & D.E.Dauletkulova et al. analysed the concept of “teacher's project competence”. [2, 3, 4, 5] They considered it as a complex phenomenon that encompasses the teacher's ability and willingness to organize independent theoretical and practical activities for the development and implementation of projects in various areas of social practice. Project competence is an indicator of personal development, resulting from mastering project activities at the substantive, operational, and procedural levels. [4]

The development and assessment of project competence are crucial in education. It involves a combination of knowledge, skills, and personal attributes that facilitate effective engagement in project-based activities. This competence can be cultivated through structured approaches and diagnostic tools that evaluate both individual and organizational capabilities. The subsequent sections highlight the essential aspects of forming and diagnosing project competency. These include identifying the key components of project competency, such as project-based activities, problem-solving skills, teamwork, and critical thinking.

Exploration of this research problem is significant as modern education requires more than just knowledge transfer. Teachers must be equipped in order to organize learning activities in a project-

based format. Project-based learning fosters critical thinking, independence, and creativity in young learners, making it essential for teachers to master its methodology. Developing project competence enables future primary school teachers to effectively design, implement, and assess educational projects, ignite students' curiosity through hands-on experiences, and integrate modern teaching technologies into the learning process.

Although project competence has been studied extensively, its development in primary school teachers remains insufficiently explored. Teaching young learners requires a specialized approach to organizing project activities, adapting methods, and aligning technologies with children's developmental abilities. However, effective strategies for cultivating project competence in students of pedagogical universities, as well as mechanisms for preparing them to integrate project-based methods into primary education have not been fully addressed in the scientific literature. Therefore, the research on this topic is necessary in pedagogical science. Thus, this study aims to analyze and substantiate the importance of developing project competence in future primary school teachers and to provide recommendations for its effective enhancement.

Project competence is characterized as a developing, dynamic, and open system capable of enriching educational content. It promotes both personal and professional growth and is a crucial factor for the successful socialization of individuals in modern society. [6]

The issue of forming and developing project competence among college students during secondary technical education is explored through the integration of the following scientific approaches:

• *System approach* (Ivanova, Lyudis, Bolotov, etc.), which focuses on studying an object as a system and defining its key properties and qualitative system characteristics; [6, 7, 8]

• *Activity-based approach* (Larmer, & Mergendoller, Zaitseva,. etc.), aimed at identifying the specific aspects of activities related to project competence. [9, 10]

• *Personality-oriented approach* (Isaeva K.R. & Tsoi A.A., Bell S. etc.), which takes into account the personal characteristics of college students, enhances the personal significance of the educational process by addressing their cognitive needs and creating conditions for their personal and professional development; [10,11]

• *Competence-based approach* (Xiaoxin Zhai, Pengfei Chen, Ivanova L.V. etc.), which integrates various scientific and didactic concepts, giving them practical relevance and aiming to consider all components of the educational process in a comprehensive manner. [13, 6]

The ability and willingness of college students to develop their own project competence, according to scholars, should be an essential component of modern professional training. Among the skills that ensure preparedness for project activities are the following: the ability to analyze problems and situations; the ability to predict, plan, and design activities; and the ability to create and present a product.

As it is well known, competence is formed and developed through activity and always manifests itself in inseparable unity with human values [14]. To form and develop project competence, it is necessary to introduce students to project activities and to help them gain experience in this area. This should be focused on academic disciplines, pedagogical practice, and systematically organized educational and research work at the university.

Integration into the Curriculum: The ability of future professionals to adapt to diverse career demands is strengthened when project competence is integrated into their curriculum, particularly in fields like the arts and education [15]. Methodological Aspects: The process of forming project competence is a key element in the professional training of music educators, ensuring they are equipped with the necessary skills to guide students through project-based learning effectively. The purpose of this survey was to gather insights into how project competence is understood and applied in these colleges. The responses could assess the current state of project competence development and identify areas for improvement in teaching practice. This process also provided valuable feedback on how effectively project-based learning is being integrated into the curriculum, highlighting the strengths and challenges faced by educators and students alike.

As Lependina points out, the role of secondary vocational education institutions (such as technical schools and colleges) is to deliver high-quality education, fulfilling students' educational needs and helping them develop the necessary professional skills [16].

As a result, the development of project competence among college students is a multifaceted process that integrates various scientific approaches to foster both personal and professional growth. The system, activity-based, personality-oriented, and competence-based approaches each contribute to a comprehensive understanding of how project competence can be effectively cultivated within the educational environment. By emphasizing motivational, value-based, and cognitive components, students can be better prepared to engage in project activities and meet the demands of modern professional training. Incorporating innovative teaching methods and aligning curricula with real-world applications are essential strategies for enhancing project competence, especially within fields like arts and education. The integration of project-based learning, combined with systematic educational frameworks, will continue to play a crucial role in shaping future professionals who can adapt to evolving career demands and contribute meaningfully to their respective fields.

Materials and Methods. Having analyzed various points of view (Matyash, Ivanova, Lyaudis, and others), we consider the structure of project competence in college students as an integration of interrelated and interdependent motivational-value and cognitive components [4, 6, 7].

The motivational-value component reflects the student's attitude toward project and research activities and is expressed in their desire and willingness to carry out their own projects, participate in collective projects, and lead student project activities. The future teacher's interest in project activities can be seen through their need for knowledge, the mastery of methodological techniques for organizing interaction with students, and the desire to gain experience in project activities at a pedagogical university [3].

The cognitive component is based on knowledge of the psychological and pedagogical foundations of project activity and the methodological techniques for managing it according to age and individual personality traits. The cognitive component is demonstrated by students through their knowledge of the patterns of modeling and supporting students' project activities, practical use of project management technologies, and the ability to monitor and evaluate students' achievements based on the results of their activities. Educational Frameworks: Innovative teaching methods, such as project-based learning, promote project competence and enhance students' cognitive and creative abilities [15]. Various methods, including problem-based learning and collaborative techniques, are essential for both teachers and students to develop project competencies [12]. To check the credibility of the establishment of project competence, a survey was conducted among teachers of Alikhan Bokeikhan University, Shakarym University of Semey and Zhubanov University. The primary objective of this questionnaire was to gain valuable insights into how project competence is perceived and implemented within educational institutions. Overall 43 teachers (N=43) working at these universities participated in the survey. The survey was completed via Google form and distributed among teachers. To promote openness and honesty, we ensured anonymity, allowing teachers to complete the survey without concerns about inquiries or any potential consequences related to their work.

The survey was structured into three sections and consisted of 30 questions. The first section contained five questions focused on participants’ personal information, including their age, years of experience of teaching at university, academic or scientific degree, university affiliation, and gender. The second section comprised 15 close-ended questions designed to reveal educators’ opinions toward the project competence of future primary school educators. The third section featured 10 open-ended questions that explored teachers' experiences and perspectives on the development of project competence among future primary school teachers. The collected responses provided a comprehensive understanding of the current state of project competence development, helping to identify strengths and areas for improvement in teaching practices.

Results. The first section of the survey was devoted to respondents' personal information. The tables below demonstrate the data about respondents' age, years of experience teaching at university and degree.

Table 1. Information about respondents' age

25-35	36-45	46-55	56-more
5	12	15	13

Table 2. Information about respondents' years of experience of teaching at university

1-10	11-20	21-30	31- more
5	13	19	6

Table 3. Information about degree of respondents

Master's degree	PhD	c.p.s	d.p.s
23	11	7	2

From these data we can observe that respondents' age, years of experience of teaching at university and there degree are diverse.

The following table represents the information about affiliation of teachers.

Table 4. Information about teachers' universities

Alikhan Bokeikhan University	Shakarym University of Semey	Zhubanov University
13 teachers	16 teachers	15 teachers

The second part of our survey provides insights into teachers' perspectives on the development of future primary teachers' project competence. The statistical significance of the findings is presented in the table below.

Table 3. Statistical analysis of survey data

№	Questions	Min	Max	Mean	Standard deviation
1	Project-based learning (PBL) is an effective method for developing professional competencies in future primary school teachers.	3	8	8.6	6.27
2	Incorporating project work into teacher training improves problem-solving and critical-thinking skills.	1	17	8.6	7.02
3	Future primary school teachers should receive specialized training in project management techniques.	6	15	8.6	3.78
4	I believe project-based learning enhances students' engagement and motivation.	4	14	8.6	4.34
5	The use of projects in teacher training aligns with modern educational standards.	3	16	8.6	5.68
6	There are sufficient resources and materials available for implementing project-based learning in teacher training.	2	17	8.6	6.95
7	Teacher educators receive adequate training in facilitating project-based learning.	3	14	8.6	4.83
8	Time constraints make it difficult to incorporate project-based learning into teacher training programs.	5	12	8.6	2.88

9	Future primary school teachers struggle with managing long-term projects.	6	13	8.6	3.21
10	Assessment of project-based learning outcomes is well-structured and reliable in my institution.	6	11	8.6	1.95
11	Project-based learning improves future teachers' ability to collaborate effectively.	5	13	8.6	3.21
12	Engaging in projects enhances creativity and innovation in teaching methods.	3	14	8.6	4.51
13	Project-based learning develops future teachers' ability to plan and organize classroom activities efficiently.	3	14	8.6	4.82
14	Students trained in project-based learning are better prepared for real-world classroom challenges.	4	14	8.6	4.77
15	The integration of technology in project work enhances project competence among future teachers.	2	15	8.6	6.02

From this table we can see that the highest standard deviation for Question 2 means that teachers' opinions on whether project components improve primary teachers' problem-solving and critical thinking skills vary widely. However, the lowest standard deviation for Question 10 indicates more agreement on the structured assessment of project-based learning.

The third part of the survey was made up questions related to how project competence will influence primary teachers' overall teaching and self-development skills. The responses for the first two questions "How do project-based learning enhance students' cognitive abilities?" and "How does project-based learning contribute to the development of students' creative abilities?" are illustrated in the following figure. We tried to collect and group the most frequent answers.

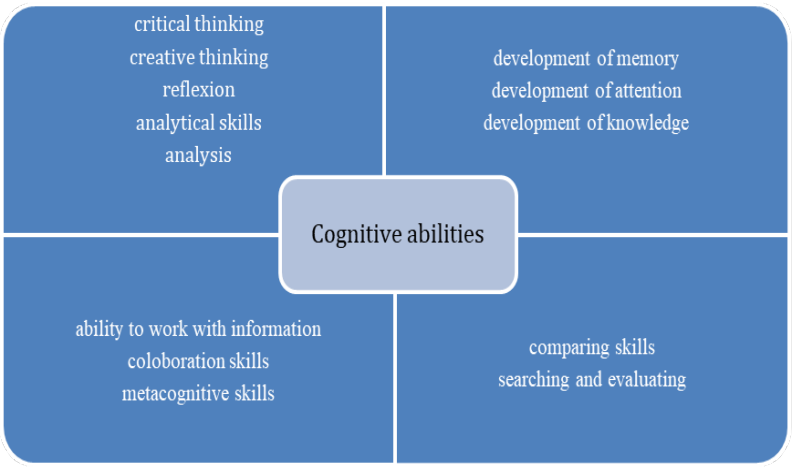

Figure 1. Project-based learning impact on cognitive ability

This figure represents the most frequent responses of teachers' on the impact of project competence on primary school teachers' creative thinking.

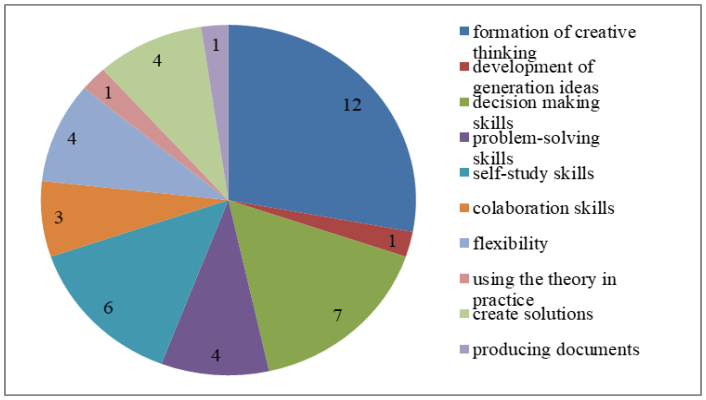

Figure 2. Project-based learning impact on creative ability

From these data, we can see that the formation of creative thinking is the most common response, while each of idea generation, applying theory in practice, and document production was mentioned once.

The following figures represent the answers for the following questions: “How does project-based learning influence professional development?” and “How does project-based learning influence innovative teaching methods?” We analyzed the data and created visual representations based on the frequency of responses.

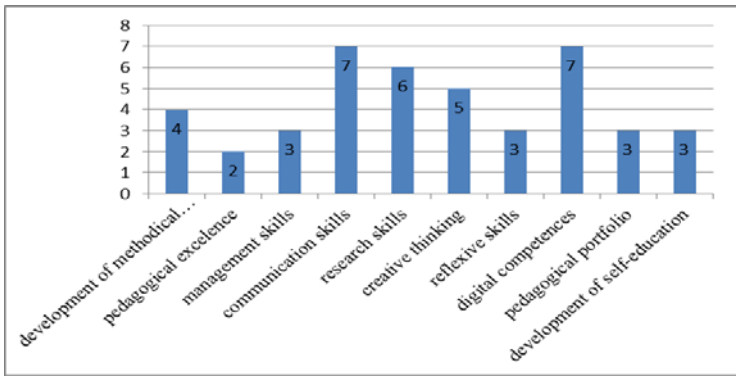

Figure 3. Influence of project-based learning professional development

The data in this figure indicate that research and creative skills benefit significantly from project-based learning. However, teachers should enhance activities related to pedagogical excellence, digital competencies, and self-study. Additionally, project-based learning should have a balanced impact on all key competencies.

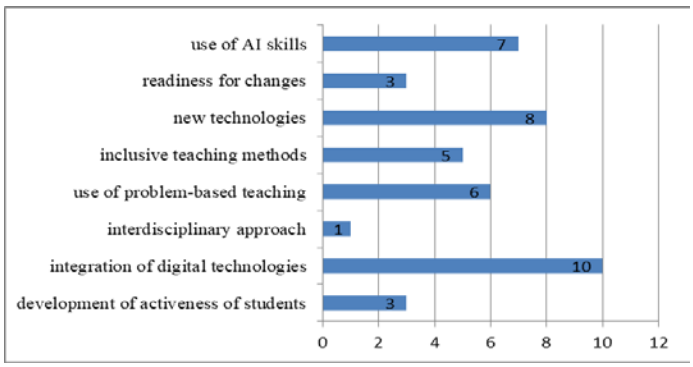

Figure 4 Influence of project-based learning innovative teaching methods

The data indicate that digital technologies are widely used; however, an interdisciplinary approach requires further development. Additionally, efforts should be made to enhance students' engagement and adaptability in project-based learning.

The following list highlights the challenges teachers encounter while developing project competence in primary education teachers.

- Lack of methodical preparation – lack of experience in project activities
- Lack of time – lack of time due to department duties
- Lack of motivation – absence of interest in new methods learning
- Difficulties in organization of projects – complexity related to coordination of activities of students
- Lack of technical tools- lack of resources
- Low level of ICT competences- lack of digital skills
- Unwillingness to change – fear of new teaching methods and reluctance to move away from traditional approaches.
- Absence of support – absence of support from authorizes
- Problems of parents' involvement- unwillingness to work
- Lack of collaboration skills – absence of support of colleagues

Discussions. Project competence is an approach to learning that is guided by teachers but facilitated by students, where educators assist learners in developing and applying skills necessary for project-based activities. Project technologies that contribute to the development of students' professional competence play a significant role in this process [11]. Students engage in the learning process by asking questions that ignite their curiosity. The foundation of a project is rooted in inquiry, with students formulating questions and being guided through research under the teacher's supervision. Findings are showcased through the creation of projects that are shared with a specific audience. Teachers play a vital role in helping organize and structure the processes that will unfold throughout the research and project stages of learning. Student autonomy is a central feature of this approach, with teachers overseeing and approving decisions at each stage of the project before students move forward. Learners with similar inquiries may choose to collaborate, enhancing their teamwork, communication, and collaborative skills, while also respecting individual learning preferences.

Project competence is not an additional or peripheral activity; rather, it forms the core of the curriculum. Projects generally incorporate skills such as reading, writing, and mathematics, and often stem from scientific topics or current social issues. The development of project competence leads to a deeper understanding of the subject matter, more comprehensive project-based activities, problem-solving skills, higher-order critical thinking, teamwork, and greater motivation to learn. Fostering project competence is essential for developing independent, self-directed learners. Students address real-world issues by formulating their own questions, planning their learning, organizing their research, and employing diverse learning strategies. This approach helps them thrive, acquiring valuable skills that provide a strong foundation for success in the global economy.

The research indicates that university teachers recognize the role of project competence development in enhancing future primary students' problem-solving and decision-making skills. However, many teachers encounter challenges in implementing this approach in the educational process. We believe this difficulty stems from a lack of sufficient methodological resources, materials, and dedicated time for project-based work. In addition, effective development of project competence requires full engagement, flexibility in project organization, and the integration of modern technologies. It is essential to consider students' individual characteristics, foster their motivation, and create an environment that encourages active participation in project-based activities.

Thus, the development of project competence is not only a tool for improving the quality of education but also a key aspect of teachers' professional growth. Systematic efforts are required to implement effective methods and create the necessary conditions for integrating project-based activities into the educational process.

The conducted survey confirmed that project-based learning, as an effective and innovative approach, offers several significant benefits. These advantages include:

- A rise in students' internal motivation to study subjects as project-based learning creates real-world connections to theoretical concepts.
- An improvement in students' independence when conducting research, fostering critical thinking and self-direction in their learning.
- A boost in the overall intellectual development of students, cultivating a desire to learn new knowledge and skills while developing their problem-solving abilities.
- Enhancement of communication and information-analytical competencies, as students work collaboratively, share ideas, and apply analytical thinking to solve complex problems.

Through the survey, we understood how these outcomes are being achieved in practice, allowing for further refinement of teaching strategies and methodologies to enhance project competence in secondary vocational education. A detailed study of this topic has enabled us to provide several recommendations.

Firstly, since project work allows students the freedom to express their own ideas, it is crucial not to excessively control or regulate them. Encouraging students' independence in their approach will foster creativity and initiative, which are key aspects of project competence.

Secondly, as project work is often open-ended, there may not be a strict plan for its implementation, or it should be flexible to accommodate changes. During the project process, teachers can introduce additional material to enrich the learning experience, thus enhancing students' problem-solving and critical thinking skills, which are essential components of project competence.

Thirdly, while most projects can be completed individually, group work often brings out the most creative outcomes. Collaborative projects help students develop communication, teamwork, and organizational skills, all of which contribute to the development of project competence.

By adhering to these principles, teachers can help students develop the necessary skills and competencies to successfully complete projects and gain a deeper understanding of the subject matter.

Conclusion. The development of project competence in future primary school teachers is a key aspect of modern teacher training. The formation and advancement of this competence enhance students' professional readiness for pedagogical activities while fostering critical thinking, creativity, individuality, and reflection. Effective development of project competence enables future teachers not only to grasp theoretical foundations but also to design and implement their own pedagogical projects. Thus, project competence serves as a crucial element in the professional growth of future primary school teachers. Its development requires a comprehensive approach, including the enhancement of educational programs, methodological support, and the creation of conditions for meaningful engagement with pedagogical practice. The findings if this study allows us to conclude that universities should create favorable conditions to develop students' project competence. Incorporating project-based teaching disciplines into curriculum and methods developing this competence should be integrated into the educational process. Moreover, these activities will assist in enhancement practical skills, independent practice as well as prepare learners for the professional activity. Thereby universities benefit from the project-based teaching producing competitive and qualified graduates.

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DIGITAL COMPETENCE OF FUTURE PRIMARY SCHOOL TEACHERS WITHIN THE FRAMEWORK OF A MULTILINGUAL APPROACH TO EDUCATION

Abstract

This article addresses the development of digital competence among future primary school teachers within the framework of a multilingual approach to education. The aim of the study is to assess the level of digital competence among pedagogical students and their readiness to implement multilingual strategies in a digital educational environment.

The scientific and practical significance of the work lies in the need to modernize teacher training programs amid the digitalization and globalization of education. The methodological basis of the research includes theoretical analysis, questionnaires, testing, and correlation analysis.

The results demonstrated a positive correlation between the students' level of digital competence and their readiness to apply multilingual technologies in teaching practice. The conclusions confirm the necessity of integrating digital and multilingual modules into teacher training curricula.

The value of the study is in justifying approaches to the development of digital literacy among future educators within the multilingual education context. The practical significance lies in the possibility of applying the research results in designing educational programs and professional development courses for teachers.

Keywords: digital competence, multilingual approach, teacher training.

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БОЛАШАҚ БАСТАУЫШ СЫНЫП МҰҒАЛІМДЕРІНІҢ КӨП ТІЛДІ ОҚЫТУ ТӘСІЛІНДЕГІ ЦИФРЛЫҚ ҚҰЗЫРЕТТІЛІГІ

Аңдатпа

Мақалада болашақ бастауыш сынып мұғалімдерінің цифрлық құзыреттілігін полилингвалды оқыту тәсілі шеңберінде қалыптастыру мәселесі қарастырылады. Зерттеудің мақсаты – педагогикалық бағыттағы студенттердің цифрлық құзыреттілік деңгейін және олардың цифрлық білім беру ортасында полилингвалды стратегияларды қолдануға дайындығын анықтау.

Жұмыстың ғылыми және практикалық маңыздылығы педагогтарды даярлау жүйесін цифрландыру және білім беруді жаһандандыру жағдайында жаңғыртудың қажеттілігімен анықталады. Зерттеудің әдіснамалық негізі ретінде теориялық талдау, сауалнама жүргізу, тестілеу және корреляциялық талдау әдістері пайдаланылды.

Зерттеу нәтижелері студенттердің цифрлық құзыреттілік деңгейі мен полилингвалды технологияларды тиімді қолдану дайындығы арасында оң байланыс бар екенін көрсетті. Қорытындылар болашақ мұғалімдерді даярлау бағдарламаларына цифрлық және полилингвалды модульдерді интеграциялау қажеттілігін дәлелдейді.

Зерттеудің құндылығы педагогикалық білім беру саласында цифрлық сауаттылықты дамыту тәсілдерін негіздеуде жатыр. Практикалық мәні – алынған нәтижелерді оқу бағдарламаларын және мұғалімдердің біліктілігін арттыру курстарын әзірлеуде қолдану мүмкіндігі.

Түйінді сөздер: цифрлық құзыреттілік, полилингвалды тәсіл, мұғалімдерді даярлау.