

FORMATION OF DESIGN AND CREATIVE COMPETENCIES THROUGH FUTURODESIGN PRACTICE

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Abstract. This article explores a methodology for developing project-creative competencies in preservice teachers under the conditions of educational digitalization. The relevance of the study lies in the urgent need to prepare future teachers capable of critical thinking, addressing open-ended problems, and designing future educational environments. A theoretical review of national and international sources (Zimnyaya, 2006; Khutorskoy, 2010; Robinson, 2011; Inayatullah, 2015) demonstrated that futures design and scenario-based modeling foster predictive skills, creativity, and metacognitive reflection.

The empirical part of the research was conducted with a sample of art-pedagogical students of the Faculty of Arts at Akdeniz University ($n = 84$). The research tools included collaborative design, visualization of educational futures through infographics, collages, digital simulations, and 3D modeling. The study comprised both diagnostic and formative stages, with evaluation criteria covering predictive competence, creative initiative, and independence.

Statistical analysis (Student's t -test, Kendall's W coefficient) confirmed significant improvements in students' project-creative competencies, particularly forecasting ability, originality, and reflective capacity. The novelty of the study lies in adapting the concept of futures design to the context of art-pedagogical education in Kazakhstan. The practical significance is reflected in the potential integration of this methodology into teacher education curricula, enhancing professional training and preparing students for work in a rapidly changing educational environment.

Keywords: project-creative competencies, futures design, teacher education, forecasting, creativity, digital technologies.

Introduction

In the context of rapid social change and active digitalization, education faces a pressing challenge: how to prepare a teacher who will not merely transmit ready-made knowledge, but design learning situations that correspond to future realities. Today's demand is for a specialist with project-creative competences, that is, the ability to construct independently, to think critically, and to anticipate the development of the educational process.

The issue of professional competence of teachers has been widely discussed by many scholars. According to I.A. Zimnyaya, the essence of professional competence lies in its integrative nature, when personal qualities, knowledge, and skills are combined into a unified whole [1]. A.V. Khutorskoy emphasized the need to combine the competence-based approach with the pedagogy of creativity [2]. In the works of A.M. Novikov [3], as well as Yesimgaliyeva and Koshshygulova [4], increasing attention is paid to the project dimension of teacher training, which is regarded as an essential component of professional competence.

In recent years, there has been growing interest in the integration of art technologies and project-based practices in pedagogy. Studies by Kozhagulov [5] and Nurtaev [6] show that involving students in artistic and design activities contributes to the development of professional identity, independence, and creative initiative. These works highlight the importance of creativity in teacher training, although they pay little attention to the design of the future as an educational value. At the same time, the need to integrate digital technologies into teacher education is emphasized in the research of Buzaubakova [7], Kalimzhanova [8].

Among modern approaches, a prominent place is occupied by the concept of futures design, which opens new research perspectives. In the philosophical-pedagogical context, it is regarded as a way of meaningful construction of possible future scenarios [9, 10]. In the practice of art education, futures design is associated with the development of students' ability to imagine, forecast, and visualize

prospective images [11]. Thus, futures design can be defined as a creative–project strategy aimed at combining artistic thinking with the anticipation of educational and social change.

Special attention is paid to project–creative competences, since they provide teachers with the capacity to design and implement innovative educational models. S. Ollenburg [12] published the *Futures–Design–Process* model in the *Journal of Futures Studies* in 2019. Its key idea lies in combining design thinking tools with participatory foresight technologies, which allows design to be considered as a method for shaping the future.

At the same time, an increasing number of researchers are turning to the concept of futures design – strategies associated with creating images of the future and forecasting educational scenarios. In international scholarship, this field is closely linked with methods of foresight and futures design [10].

Thus, it can be argued that pedagogy requires a methodology that not only develops students' creative abilities, but also equips them with the capacity to design the future. This article explores the experience of applying futures design practices in the training of future teachers and analyzes their impact on the development of project–creative competences.

The aim of the study is to develop and test a methodology for forming project–creative competences among students of pedagogical specialties through the use of futures design practices.

The research hypothesis assumes that the systematic involvement of students in futures design practices (scenario modeling, visualization of the future, collective design) will significantly increase their level of project–creative competences compared to the initial indicators.

For the first time in pedagogical practice in Kazakhstan, an attempt has been made to apply futures design systematically to the formation of project–creative competences among students of pedagogical programs.

The issue of developing the professional competences of future teachers occupies a stable position in pedagogical science. In the works of both domestic and international scholars, professional competence is described as a holistic personal construct that integrates knowledge, practical skills, a system of values, and the ability to creatively solve professional tasks [1, 2].

If *defuturing* in Fry's work reflects the erosion of the future, then *futuring*, on the contrary, is associated with constructive design that creates new developmental scenarios. Similar ideas are developed by S. Ollenburg: in her 2018 essay *Beyond Futures...*, she explores how foresight methods can be embedded into the process of educating future designers [13]. In the 1990s, designer and theorist Tony Fry introduced the term *defuturing* – the 'removal of the future,' referring to its destruction or loss through certain design practices [14].

This clearly indicates the existence of the term *futures design* at the intersection of design practices and futurological approaches. The concept of *futurodesign* essentially means "designing the future," incorporating predictive and project-oriented thinking. Hence, it is particularly useful to approach the subject through artistic, creative, and digital pedagogical methods.

Researchers Zhdanko, Shumovskaya, and Usheva note that the project–creative activity of future teachers requires the integration of project thinking, creativity, and pedagogical reflection [15]. This enables teachers not merely to reproduce existing methodologies but to construct new educational practices. Yesimgaliyeva and Koshshygulova [4, 5] emphasize that without a project component, teacher training risks remaining reproductive and insufficiently adaptive to social change.

The need to integrate digital technologies into teacher education is emphasized in the research of Abiltayeva et al., who examined the perceptions of pre-service biology teachers regarding digital integration in teaching practices in Kazakhstan [16]. Their findings highlight that the development of teacher competencies is closely linked to digital literacy and the ability to apply technology effectively in the learning process.

Today, teacher competences are understood not only as a set of knowledge and skills but also as the ability to address non-standard problems, to adopt a creative approach, and to anticipate developments [1, 2]. Within the structure of professional training, particular importance is attached to the project–creative component. Its presence ensures a teacher's readiness to create new educational models rather than limit themselves to replicating existing ones.

T.A. Zhdanko and A.G. Shumovskaya, in their studies, identified three key aspects of project–creative competences: the ability to forecast, autonomy, and reflection [15]. Similar ideas are expressed by Yesimgaliyeva and Koshshygulova [4], who stress that engaging students in research–creative practices allows them to move beyond traditional learning.

In this context, *futurodesign* becomes a productive tool. It involves the creation of future scenarios, modeling of situations that have not yet occurred but are potentially possible. Artistic and pedagogical education integrates the ideas of *futurodesign* through visual forms such as collages, graphic representations, infographics, and various digital models [11].

As a teaching method, futures design opens up several important perspectives for pedagogy. First, it enables students to master the principles of scenario modeling, where each project includes a forecast of potential outcomes. Second, it develops critical thinking skills: a future teacher must evaluate the feasibility of proposed models and consider educational risks. Third, the practice of futures design organically integrates individual and collective creativity: constructing images of the future requires both personal creative contributions and collaborative team discussions.

Thus, it can be concluded that the theoretical foundation points to the promising use of futures design in teacher training. However, the question of how specific futures design practices influence the development of project–creative competences remains open. This determines the need for empirical research aimed at identifying the dynamics of students’ competences when

Materials and methods

The empirical part of this study was designed to examine the extent to which futures design practices can genuinely help students of pedagogical specialties to develop project–creative competences. For instance, students were tasked with designing a lesson scenario for the year 2030, in which they had to visualize the educational environment of the future using AR/VR technologies. Evaluation was carried out based on three criteria: originality of the idea, feasibility, and depth of forecasting.

The study involved second– and third–year students of pedagogical majors (n=84) enrolled at a university specializing in artistic and pedagogical education. This choice was deliberate, as it is at this stage that students begin to face their first professional trials and already possess a basic understanding of their future profession.

It should be noted that the sample was limited to students from a single university (n=84), which does not allow for full extrapolation of the results to the entire body of pedagogical programs in Kazakhstan. This limitation highlights the need for further studies with larger and more diverse samples.

At the ascertaining stage, we assessed the initial level of project–creative competences. For this purpose, questionnaires, self–assessment scales, and a mini–project assignment (e.g., a lesson scenario with visualization elements) were used. The materials obtained revealed that, for the majority of students, project skills were episodic in nature, and the creative component was often limited to formal techniques.

At the formative stage, a series of futures design workshops was introduced. Students were invited to work with so–called “images of the future” – creating visual and textual scenarios of pedagogical situations projected 10–15 years ahead. The following tools were employed:

- collective brainstorming and idea mapping;
- designing a “lesson of the future” using digital and artistic tools;
- visualization in the form of collages, infographics, and 3D models;
- discussion of the risks and benefits of the proposed solutions.

To assess dynamics, the following methods were applied:

1. An author’s scale of project–creative competences (evaluating four blocks: forecasting ability, creativity, autonomy, and reflection).
2. Analysis of students’ project outputs (visual and textual products).
3. Expert evaluation by faculty members (based on originality, coherence of concept, and feasibility of pedagogical solutions).

The results were recorded in percentage terms, and additionally, mean comparisons (Student's t-test) were used to identify statistically significant changes.

This approach allowed not only for the quantitative registration of changes but also for the qualitative observation of how students' project thinking evolved, and which new strategies they began to adopt in addressing pedagogical tasks.

Results and discussion

At the ascertaining stage, it was found that only a small proportion of students (about 18%) demonstrated project-creative competences in a systematic way. The majority limited themselves to isolated techniques – such as visualizing ideas or searching for non-standard solutions – without a coherent project design. Particularly low results were recorded for the criteria of «forecasting consequences» and «reflection».

After the formative experiment, during which students engaged with futures design practices, the indicators changed significantly. Table 1 presents a summary of the dynamics (percentage of students demonstrating medium and high levels for each indicator).

Table 1 – Dynamics of students' project-creative competences (before and after the experiment, %)

Indicator	Before Experiment	After Experiment	Growth
Ability to forecast	22	57	+35
Creativity	41	72	+31
Independence in project design	35	68	+33
Reflexivity	28	61	+33

As shown in the table, the most significant growth occurred in the forecasting indicator. At the beginning of the experiment, students hardly considered the consequences of their decisions; however, after engaging in futures design practices, they began to include entire sections on «risks» and «opportunities» in their projects. The data suggest that students are gradually moving from fragmented, situational solutions toward more holistic and systematic project thinking. The increase in creativity was also notable: this was facilitated by assignments related to future visualization, in which students used collages, infographics, and even simple digital models. According to participants' feedback, such formats helped them to step outside the boundaries of habitual thinking.

An interesting result was obtained in terms of independence. At the start of the study, many students preferred to work «by example» or wait for hints from the instructor. After a series of workshops, their projects became more initiative-driven, featuring original solutions and attempts to integrate artistic and digital elements.

For greater clarity, the analysis covered not only average indicators but also the levels of project-creative competences (low, medium, high). This made it possible to see how significantly the distribution of students changed after the implementation of futures design practices.

Table 2 – Distribution of students' project-creative competence levels before and after the experiment (%)

Indicator	Low (Before)	Medium (Before)	High (Before)	Low (After)	Medium (After)	High (After)
Forecasting	48	30	22	15	28	57
Creativity	32	40	28	12	30	58
Independence	37	28	35	14	18	68
Reflection	45	27	28	18	21	61

The table 2 shows that the proportion of students with a low level across all indicators decreased significantly, while the number of students with a high level, on the contrary, increased nearly two to three times.

Figure 1 presents the changes in the proportion of students with a high level of competences before and after the experiment.

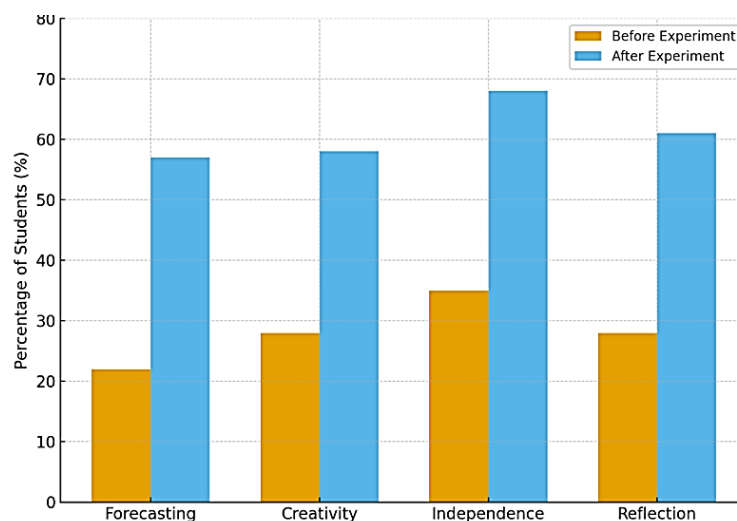


Figure 1 – Dynamics of the high level of students' project-creative competences before and after the experiment

Reflexivity, traditionally considered a challenging indicator, also improved. In the final questionnaires, students more frequently noted that they had learned to critically evaluate their own ideas and to identify not only the strengths but also the weaknesses of their projects.

To verify the reliability of the observed differences, the paired-sample Student's *t*-test was applied. The indicators of students' project-creative competences before and after the formative stage of the experiment were compared table 3.

The results are consistent with findings from international scholars working in the field of futures design. For instance, S. Ollenburg [12] demonstrated that students' participation in designing educational scenarios of the future fosters the development of critical and scenario-based thinking. Similarly, K. Robinson [9] emphasized that creative practices related to imagining the future are directly linked to the growth of creativity. Our study confirms these conclusions: students engaged in futures design practices showed significant improvement both in creativity and in their ability to forecast the consequences of pedagogical decisions.

Table 3 – Results of Statistical Analysis (Student's *t*-test)

Indicator	Mean (Before)	Mean (After)	t – value	p – level	Significance
Forecasting	2.1	3.5	4.87	<0.01	Significant
Creativity	2.6	3.8	4.42	<0.01	Significant
Independence	2.4	3.7	4.65	<0.01	Significant
Reflection	2.2	3.6	4.53	<0.01	Significant

Comparison of the obtained results with international research [9, 13] shows that the use of futures design practices indeed contributes to the development of students' scenario-based and critical thinking. Our findings confirm the general trend, while also highlighting specific national features related to the digital readiness level of learners.

Overall, the results support the hypothesis: futures design practices are an effective tool for developing the project–creative competences of future teachers. The findings of this study are consistent with previous research demonstrating that the integration of digital and creative practices enhances teachers' professional competencies. Similar conclusions were drawn by Shakiyeva et al. [17], who emphasized that the use of distance and blended learning technologies contributes to the development of professional competence, autonomy, and creativity among pre–service teachers. This confirms that the combination of digital tools and innovative design approaches, such as futures design, can serve as an effective model for preparing teachers for the challenges of modern education. At the same time, it should be noted that for some students (about 15%), the progress was minimal. This may be due to their low motivation for creative tasks or insufficient digital preparedness.

The study confirmed that futures design practices are an effective instrument for shaping project–creative competences in future teachers. The most significant improvements were observed in forecasting ability and independence, which are directly linked to the core tasks of the teaching profession.

Despite the positive outcomes, the study has several limitations. First, the sample was restricted to students from a single university, which limits the generalizability of the findings to all pedagogical institutions in Kazakhstan. Second, differences were observed in the initial training levels of the students: some had prior experience with digital tools, which may have influenced the success of task completion. Third, the study covered a relatively short period; longitudinal research is needed to confirm the sustainability of the observed changes.

The relatively small sample size and the lack of long–term analysis should be considered limitations of the study. Future research should broaden the participant base and track how the competences developed through futures design are manifested in the professional activities of graduates. Futures design has the potential not only to foster students' creative thinking but also to shape their broader vision of pedagogical practice – the ability to design educational futures.

Conclusion

The conducted study confirmed that the inclusion of futures design practices in the educational process contributes to the development of project–creative competences among students of pedagogical specialties. Similar conclusions were drawn in earlier Kazakhstani studies by Zhanguzhinova et al. [18] on the formation of professional–pedagogical competence. The most significant progress was recorded in the ability to forecast the consequences of pedagogical decisions and in the development of independence when designing learning situations. Students increasingly turned to idea visualization, demonstrated initiative, and employed elements of digital design. All this indicates that futures design is not merely an artistic technique but an effective methodology for shaping a new type of pedagogical thinking.

Particular attention should be paid to the sustainability of the results obtained. Since this study was limited to a short–term period, a promising direction would be the implementation of longitudinal analyses to assess the extent to which the developed competences are maintained and manifested in graduates' professional activities. Futures design has the potential not only to foster students' creative thinking but also to cultivate a broader vision of pedagogical practice –the ability to design educational futures.

The methodology can be integrated into courses such as *Pedagogical Design, Teaching Methods*, and artistic–creative disciplines in pedagogical universities. It may also serve as a model for developing elective courses in digital and artistic design.

At the same time, the study revealed certain limitations. For some students, progress was minimal, which may be related to low motivation or insufficient digital skills. This suggests the need for a more flexible approach – possibly through the individualization of tasks or preliminary training in the basics of digital design.

Future research is seen in several directions. First, it is necessary to expand the sample by including students from different pedagogical profiles in order to test the universality of the methodology. Second, it is important to trace the long–term effect: how the developed

competences manifest in graduates' professional practice. Third, it would be useful to compare futures design practices with other art-technologies to identify their unique advantages and possible integrations.

The research hypothesis was confirmed: the formative experiment demonstrated statistically significant growth across all indicators (creativity, forecasting, independence, and reflection), proving the effectiveness of the proposed methodology.

In conclusion, the methodology of developing project-creative competences through futures design not only improves the quality of professional training for students but also fosters their ability to think prospectively, critically, and creatively – the very qualities that define the teacher of the future.

LITERATURE:

- 1 Зимняя И.А. Ключевые компетенции как результативно-целевая основа компетентного подхода в образовании. – Москва: Исследовательский центр проблем качества подготовки специалистов, 2006. – 42 с.
- 2 Хуторской А.В. Компетентный подход и педагогика творчества. – Москва: Академия, 2010. – 222 с.
- 3 Новиков А.М. Методология образования. – Москва: Эгвес, 2013. – 208 с.
- 4 Есимғалиева Т.М., Кошшығұлова А.С. Проблемы формирования профессиональных компетенций будущих учителей в условиях современного образования // Вестник КазНПУ им. Абая. Серия «Педагогические науки». – 2021. – Т. 1(65). – С. 45–53.
- 5 Кожангулов А.Т., Кожангулова Г.А. Арт-технологии в развитии профессиональных компетенций педагогов дошкольного образования // Вестник КазУМОиМЯ им. Абылай хана. Педагогическая серия. – 2020. – №2. – С. 112–120.
- 6 Нуртаев У.Н. Технологии формирования профессиональной компетентности будущих учителей изобразительного искусства // Interscience. – 2022. – Т. 5. – С. 78–85.
- 7 Бузаубакова К.Д., Бедельбаева А.Е. Необходимость формирования цифровых компетенций будущих учителей // Вестник КазНПУ им. Абая. Серия «Педагогика и психология». – 2023. – Т. 4(70). – С. 33–40.
- 8 Калимжанова Р. Л., Ибраева Г. М. Методы формирования цифровых компетенций будущих учителей в коллаборативной образовательной среде // Вестник Карагандинского университета. Серия «Педагогика». – 2022. – №3. – С.55–63.
- 9 Robinson K. Out of our minds: Learning to be creative. – Chichester: Capstone, 2011. – 352 p.
- 10 Inayatullah S. What works: Case studies in the practice of foresight. – Taiwan: Tamkang University, 2015. – 276 p.
- 11 Абишева О.Т. Художественно-дизайнерская компетентность в подготовке учителя: перспективы // Бюллетень науки и практики. – 2021. – Т. 7(10). – С. 382–390. DOI: 10.33619/2414-2948/71/45.
- 12 Ollenburg S.A. A futures-design-process model for participatory futures // Journal of Futures Studies. – 2019. – Т. 23(4). – С.51–62. DOI: 10.6531/JFS.201906_23(4).0006.
- 13 Ollenburg S. Beyond futures: Designing futures by educating future designers // World Futures Review. – 2018. – Т. 10(4). – С.279–293. DOI: 10.1177/1946756718790758.
- 14 Fry T. Defuturing: A new design philosophy. – London: Bloomsbury Visual Arts, 2020. – 288 p. ISBN 9781350089532.
- 15 Жданко Т.А.З., Шумовская А.Г., Ушева Т.Ф. Креативная и рефлексивная компетентность как необходимые характеристики современного студента // Социальные и культурные трансформации в контексте современной глобализации: материалы конф. – 2019. – Т. 58. – С. 1773–1781. DOI: 10.15405/epsbs.2019.03.02.206.
- 16 Abiltayeva A., Zhumagulova K., Satayev M., Yechshzhanov T., Maimatayeva A., Balta N. Teacher competencies and digital integration into teaching practices: Perceptions from pre-service biology teachers in Kazakhstan // Frontiers in Education. Teacher Education section. – 2025. DOI: 10.3389/feduc.2025.1628034.
- 17 Shakiyeva A., Zhorabekova A., Ardak A., Madina A., Kudabayeva P., Rizakhojayeva G. Formation of professional competencies of a future foreign language teacher in the field of distance education // World Journal on Educational Technology: Current Issues. – 2022. – 14(1). – P. 268–281. DOI: 10.18844/wjet.v14i1.6724.
- 18 Zhanguzhinova M., Magauova A., Kertayeva K., Yessimova D., Toktarbayev D., Kassenov K. Formation of the professionally-pedagogical competence in preparation of future teachers in Kazakhstan // Society. Integration. Education: Proceedings of the International Scientific Conference. – 2018. – T.1. – P. 611–619. DOI: 10.17770/sie2018vol1.3345.

REFERENCES:

- 1 Zimnyaya I.A. (2006). Klyuchevye kompetencii kak rezul'tativno-celevaya osnova kompetentnostnogo podhoda v obrazovanii [Key competencies as a result-target basis of the competence-based approach in education]. Moscow: Issledovatel'skiy centr problem kachestva podgotovki specialistov, 42 p. (in Russian).

2 Khutorskoy A.V. (2010). Kompetentnostnyy podhod i pedagogika tvorchestva [Competence-based approach and pedagogy of creativity]. Moscow: Akademiya, 222 p. (in Russian).

3 Novikov A.M. (2013). Metodologiya obrazovaniya [Methodology of education]. Moscow: Egves, 208 p. (in Russian).

4 Yesimgalieva T.M., Koshshigulova A.S. (2021). Problemy formirovaniya professionalnyh kompetency budushchih uchiteley v usloviyah sovremennogo obrazovaniya [Problems of professional competencies formation of future teachers in modern education]. Vestnik KazNPU im. Abaya. Seriya "Pedagogicheskie nauki", vol. 1(65), pp.45–53. (in Russian).

5 Kozhagulov A.T., Kozhagulova G.A. (2020). Art–tekhnologii v razvitiі professionalnyh kompetency pedagogov doshkolnogo obrazovaniya [Art–technologies in development of professional competencies of preschool teachers]. Vestnik KazUMOİMYA im. Abylay hana. Pedagogicheskaya seriya, vol.2, pp.112–120. (in Russian).

6 Nurtaev U.N. (2022). Tekhnologii formirovaniya professionalnoy kompetentnosti budushchih uchiteley izobrazitel'nogo iskusstva [Technologies of professional competence formation of future art teachers]. Interscience, vol.5, pp.78–85. (in Russian).

7 Buzaubakova K.D., Bedelbaeva A.E. (2023). Neobhodimost formirovaniya tsifrovyyh kompetency budushchih uchiteley [The necessity of digital competencies formation of future teachers]. Vestnik KazNPU im. Abaya. Seriya "Pedagogika i psihologiya", vol.4(70), pp.33–40. (in Russian).

8 Kalimzhanova R.L., Ibraeva G.M. (2022). Metody formirovaniya tsifrovyyh kompetency budushchih uchiteley v kollaborativnoy obrazovatel'noy srede [Methods of digital competencies formation of future teachers in collaborative educational environment]. Vestnik Karagandinskogo universiteta. Seriya "Pedagogika", vol.3, pp. 5–63. (in Russian).

9 Robinson K. (2011). Out of our minds: Learning to be creative. Chichester: Capstone, 352 p.

10 Inayatullah S. (2015). What works: Case studies in the practice of foresight. Taiwan: Tamkang University, 276 p.

11 Abisheva O.T. (2021). Hudozhestvenno–dizaynerskaya kompetentnost v podgotovke uchitelya: perspektivy [Art and design competence in teacher training: prospects]. Byulleten nauki i praktiki, vol. 7(10), pp.382–390. DOI: 10.33619/2414–2948/71/45. (in Russian).

12 Ollenburg S.A. (2019). A futures–design–process model for participatory futures. *Journal of Futures Studies*, vol. 23(4), pp. 51–62. DOI: 10.6531/JFS.201906_23(4).0006.

13 Ollenburg S. (2018). Beyond futures: Designing futures by educating future designers. *World Futures Review*, vol. 10(4), pp. 279–293. DOI: 10.1177/1946756718790758.

14 Fry T. (2020). Defuturing: A new design philosophy. London: Bloomsbury Visual Arts, 288 p. ISBN 9781350089532.

15 Zhdanko T.A.Z., Shumovskaya A.G., Usheva T.F. (2019). Kreativnaya i reflektivnaya kompetentnost kak neobhodimye harakteristiki sovremennogo studenta [Creative and reflective competence as essential characteristics of a modern student]. Socialnye i kulturnye transformatsii v kontekste sovremennoy globalizatsii: materialy konf., vol. 58, pp. 1773–1781. DOI: 10.15405/epsbs.2019.03.02.206. (in Russian).

16 Abiltayeva A., Zhumagulova K., Satayev M., Yechshzhanov T., Maimatayeva A., Balta N. (2025). Teacher competencies and digital integration into teaching practices: Perceptions from pre–service biology teachers in Kazakhstan. *Frontiers in Education, Teacher Education section*. DOI: 10.3389/feduc.2025.1628034.

17 Shakiyeva A., Zhorabekova A., Ardak A., Madina A., Kudabayeva P., Rizakhojayeva G. (2022). Formation of professional competencies of a future foreign language teacher in the field of distance education. *World Journal on Educational Technology: Current Issues*, 14(1), pp. 268–281. DOI: 10.18844/wjet.v14i1.6724.

18 Zhanguzhinova M., Magauova A., Kertayeva K., Yessimova D., Toktarbayev D., Kassenov K. (2018). Formation of the professionally–pedagogical competence in preparation of future teachers in Kazakhstan. *Society. Integration. Education: Proceedings of the International Scientific Conference*, vol. 1, pp. 611–619. DOI: 10.17770/sie2018vol1.3345.

ФУТУРОДИЗАЙН ПРАКТИКАСЫ АРҚЫЛЫ ЖОБАЛЫҚ–ШЫҒАРМАШЫЛЫҚ ҚҰЗЫРЕТТІЛІКТЕРДІ ҚАЛЫПТАСТЫРУ

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Аңдатпа. Бұл мақалада цифрландыру жағдайында педагогикалық мамандықтар студенттерінің жобалық–шығармашылық құзыреттерін қалыптастыру әдістемесі қарастырылады. Зерттеудің өзектілігі

болашақ мұғалімдерді сыни тұрғыдан ойлауға, ашық проблемаларды шешуге және білім берудің болашағын жобалауға даярлау қажеттілігімен айқындалады. Отандық және шетелдік еңбектерді теориялық талдау (Зимняя, 2006; Хуторской, 2010; Robinson, 2011; Inayatullah, 2015) футуродизайн мен сценарийлік модельдеу әдістерінің болжамдау, креативтілік және метатанымдық рефлексияны дамытуға ықпал ететінін көрсетті.

Зерттеудің эмпирикалық бөлігі Ақдениз университетінің өнер факультетінің көркем-педагогикалық бағыттағы студенттері ($n = 84$) арасында жүргізілді. Зерттеу құралдары ретінде ұжымдық жобалау, білім беру болашағын инфографика, коллаж, цифрлық симуляциялар және 3D модельдеу арқылы визуализациялау қолданылды. Зерттеу констатациялық және қалыптастырушы кезеңдерді қамтыды, ал диагностикалық критерийлерге болжамдық құзыреттілік, шығармашылық бастама және дербестік енгізілді.

Статистикалық талдау (Студенттің t -тесті, Кендалл W коэффициенті) студенттердің жобалық-шығармашылық құзыреттерінің, әсіресе болжамдау, түпнұсқалық және рефлексия көрсеткіштерінің айтарлықтай артқанын растады. Жұмыстың жаңалығы футуродизайн тұжырымдамасын Қазақстандағы көркем-педагогикалық білім беру жағдайына бейімдеуде. Зерттеудің практикалық маңызы әзірленген әдістемені ЖОО-лардың білім беру бағдарламаларына енгізу мүмкіндігінде, бұл болашақ мұғалімдердің кәсіби даярлығын арттыруға және тез өзгеретін білім беру ортасында жұмыс істеуге дайындығын қамтамасыз етуге ықпал етеді.

Кілт сөздер: жобалық-шығармашылық құзыреттер, футуродизайн, педагогикалық білім, болжамдау, креативтілік, цифрлық технологиялар.

ФОРМИРОВАНИЕ ПРОЕКТНО–ТВОРЧЕСКИХ КОМПЕТЕНЦИЙ ЧЕРЕЗ ПРАКТИКИ ФУТУРОДИЗАЙНА

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Аннотация. В статье рассматривается методика формирования проектно–творческих компетенций у студентов педагогических специальностей в условиях цифровизации образования. Актуальность исследования обусловлена необходимостью подготовки будущих педагогов, способных мыслить критически, работать с открытыми проблемами и проектировать образовательное будущее. Теоретический анализ отечественных и зарубежных источников (Зимняя, 2006; Хуторской, 2010; Robinson, 2011; Inayatullah, 2015) показал, что использование методов футуродизайна и сценарного моделирования способствует развитию прогностических умений, креативности и метапознавательной рефлексии.

Эмпирическая часть исследования была проведена на выборке студентов художественно–педагогического профиля факультета искусств Университета Акдениз ($n = 84$). В качестве инструментов применялись методы коллективного проектирования, визуализация образовательного будущего через инфографику, коллажи, цифровые симуляции и 3D–моделирование. Исследование включало констатирующий и формирующий этапы, а в качестве диагностических критериев использовались показатели прогностической компетентности, творческой инициативы и самостоятельности.

Результаты статистического анализа (t -критерий Стьюдента, коэффициент Кендалла W) подтвердили значимый рост уровня проектно–творческих компетенций, в частности умений прогнозирования, оригинальности замысла и качества рефлексии. Новизна работы заключается в адаптации концепции футуродизайна к художественно–педагогическому образованию Казахстана. Практическая значимость исследования состоит в возможности интеграции разработанной методики в образовательные программы вузов, что позволит повысить эффективность профессиональной подготовки будущих педагогов и сформировать у них готовность к работе в условиях быстро меняющейся образовательной среды.

Ключевые слова: проектно–творческие компетенции, футуродизайн, педагогическое образование, прогнозирование, креативность, цифровые технологии.