

## PEDAGOGICAL CONDITIONS FOR THE FORMATION OF READINESS TO INNOVATE BY MEANS OF DESIGN THINKING IN THE CONTEXT OF PRIMARY SCHOOL TEACHERS PROFESSIONAL PREPARATION

### ПЕДАГОГІЧНІ УМОВИ ФОРМУВАННЯ ГОТОВНОСТІ ДО ІННОВАЦІЙ ЗАСОБАМИ ДИЗАЙН-МИСЛЕННЯ В КОНТЕКСТІ ПРОФЕСІЙНОЇ ПІДГОТОВКИ ВЧИТЕЛІВ ПОЧАТКОВОЇ ШКОЛИ

*The article is devoted to the substantiation of pedagogical conditions for managing the preparation of future primary school teachers for innovative activity by means of the "design thinking" approach. The authors found contradictions between the need of the Ukrainian education system for teachers with a high level of readiness for innovation and insufficient level of managerial, pedagogical, and practical aspects of preparing future primary school teachers for innovation by means of the design-thinking approach.*

*The article focuses on terms of "innovative pedagogical activity", "professional preparations of future primary school teachers", "teacher's readiness to innovative pedagogical activity", "managing preparations of applicants", "design-thinking approach". The technology of "design thinking" was chosen as a tool for the formation of future professionals' readiness for innovation as it allows the provision of real mechanism models for creating and implementing innovations during professional activities.*

*It is determined that the management of future primary school teachers preparation for innovation by means of "design-thinking" technology becomes most effective when this process is based on a synergistic combination of pedagogical conditions: purposeful management of the formation of internal motivation of future primary school teachers to carry out innovative pedagogical activities; creation and application of a joint team scheme for the implementation of innovative pedagogical activities in the team of higher education students by means of "design thinking".*

*The prospect of research in this direction is further experimental testing of pedagogical conditions for managing the preparation of higher education students for innovative pedagogical activities by means of "design thinking".*

**Key words:** professional training, future primary school teacher, innovative activity, "design thinking" technology.

*Статтю присвячено обґрунтуванню педагогічних умов управління підготовкою майбутніх учителів початкової школи до*

*інноваційної діяльності засобами технології «дизайн-мислення». Авторами виявлено суперечності між потребою української системи освіти в учителях із високим рівнем сформованої готовності до інноваційної діяльності та недостатньою розробленістю управлінсько-педагогічних і практичних аспектів підготовки майбутніх учителів початкової школи до інноваційної діяльності засобами технології «дизайн-мислення».*

*Розглянуто суть понять «інноваційна педагогічна діяльність», «професійна підготовка майбутніх учителів початкової школи», «готовність та недостатність до інноваційної діяльності», «управління підготовкою здобувачів освіти», «технологія «дизайн-мислення»».*

*Технологію «дизайн-мислення» обрано як інструменту формування у майбутніх фахівців готовності до інноваційної діяльності, адже вона дозволяє забезпечити модель реального механізму створення та реалізації інновацій під час професійної діяльності.*

*Визначено, що управління процесом підготовки майбутніх учителів початкової школи до інноваційної діяльності засобами технології «дизайн-мислення» набуває максимальної ефективності тоді, коли цей процес ґрунтується на синергетичному поєднанні педагогічних умов: цілеспрямоване управління формуванням внутрішньої мотивації у майбутніх учителів початкової школи до провадження інноваційної діяльності; створення і застосування спільної командної схеми впровадження інноваційної діяльності в колективі здобувачів вищої освіти засобами технології «дизайн-мислення».*

*Перспективно досліджень у цьому напрямі є подальша експериментальна перевірка педагогічних умов управління підготовкою здобувачів вищої освіти до інноваційної діяльності засобами технології «дизайн-мислення».*

**Ключові слова:** професійна підготовка, майбутній учитель початкової школи, інноваційна діяльність, технологія «дизайн-мислення».

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**Formulation of the problem in general.** The adoption of the digital ecosystem in the modern world leads to a change in approaches to the organization of the educational process at all levels and stages. It is important that primary school teachers not only apply and adapt existing innovative solutions but also create them independently in accordance with the needs of students in the context of innovative pedagogical activities.

A particular foundation for quality innovation in general secondary education is the formation of readiness for its implementation in future teachers at

the stage of professional training through purposeful and systematic management of this process by the staff of higher education.

The formation of readiness for innovation involves the organization of such an educational environment in higher education, which would be a model of a real mechanism for creating and implementing innovations in professional activities. To do this, it is appropriate to use different learning technologies, in particular, the technology of "design thinking".

**Analysis of recent research and publications.** Problems of training V. Bondar, L. Vashchenko,

I. Gavrysh, I. Dychkivska, O. Dubasenyuk, Y. Zavalevsky, G. Ponomareva, I. Repko, V. Slastyonin, I. Kholkovska consider future teachers to innovate in their scientific works; O. Hryhorovych, V. Donets, S. Ilyash, O. Mishkulynets, O. Pahalchuk, O. Tsyunyak are researching the issues of formation of innovative competence of future primary school teachers; I. Babina, R. Vdovychenko, S. Volkova, O. Kasyanova, L. Petrychenko, O. Marmaza, S. Nadtochiy, A. Kharkivska study the issues of management of innovation processes in educational institutions; application of funds design thinking in the educational process was the subject of research V. Boychenko, L. Varava, A. Danilov, Y. Kulinka, D. Lehei, O. Litkovets, D. Purak, K. Schwartz.

**Highlighting previously unresolved parts of the overall problem.** Despite the fact that researchers have reached a certain consensus on the theoretical foundations of the formation of future primary school teachers' readiness for innovation activities, management and pedagogical and practical aspects of training future primary school teachers for innovative activities by means of "design-thinking" technology are still insufficiently developed.

**The purpose of the article.** To substantiate the pedagogical conditions for managing the process of preparation for innovative activities of future primary school teachers by means of "design-thinking" technology.

**Presenting main material.** Adoption of the Concept of Education Development for the period 2015–2025, introduction of the reform 'New Ukrainian School', updating the Law of Ukraine "On Education", approval of the new State Standard of Primary Education and Professional Standard of Teachers raised issues of innovative development of educational institutions' constant search for new methods and means of meeting educational needs and improving the quality and efficiency of the educational process in general secondary education, but also the scale of innovation and innovation in all areas of higher education.

At the present stage of development of science, researchers consider the concept of "innovative pedagogical activities" in the context of different approaches. I. Dychkivska characterizes innovative pedagogical activity as purposeful activity that "... unites various operations and actions aimed at obtaining new knowledge, technologies, systems" [2, p. 248].

Innovative pedagogical activity is carried out in a synergistic combination of two levels: reproductive, characterized by activities to reproduce and apply already developed algorithms for implementing educational innovations by known means, and productive, where the teacher independently creates educational innovations according to students' requests.

In order to carry out an innovative pedagogical activity in a general secondary education institution, it is important at the stage of professional training of a future specialist to purposefully form the appropriate readiness in him.

We focus on the training of future primary school teachers in the context of a purposeful learning process through a system of values, projected knowledge, and skills that will be necessary for pedagogical activities in the future.

O. Bartkiv believes that "readiness for innovative pedagogical activity – a special personal status, which implies that the teacher has a motivational and value attitude to professional activities, possession of effective ways and means of achieving pedagogical goals, the ability to creativity and reflection" [1, p. 52]. Most researchers consider the readiness to innovate as a combination of motivational, cognitive, reflective and creative components.

Purposeful and systematic management of this process is important for the effective formation of the readiness of future primary school teachers for innovative activities in the context of professional training of future teachers on the part of the staff of the higher education institution.

O. Povidaychuk considers the management of higher education training as a process that allows "to direct the mental activity of students towards more active and in-depth development of new information" [3, p. 210]. Accordingly, managing the formation of future primary school teachers for innovation is an activity provided by a set of purposeful influences of the collective management entity on all factors of the educational environment that can ensure the readiness of higher education students to innovate and achieve purposeful self-development within a dynamically changing environment; the basis of such management is an interaction of managers, the main result – the development of the personality of the future specialist.

At the present stage of the formation of pedagogical science in the context of Innovative activities, "design thinking" is beginning to be actively used in pedagogical practice. Most scientists agree that "design thinking" is a technology that can be improved, accelerated and visualize innovative activities carried out not only by designers but also by teams in educational institutions of any type.

More than 60 US higher education institutions use design thinking technology in workshops, additional trainings, courses or training programs in the context of innovation; this technology is one of the key in K16 + training programs to promote skills development of the XXI century [8].

Purposeful management of the process of preparation for innovative activities of future primary school teachers is implemented in synergistic combination with a set of pedagogical conditions:

enrichment of the content of the disciplines of the cycle professional and practical training of the system of concepts and theoretical knowledge of pedagogical innovation and the development of appropriate educational and methodological support; development of reflective skills of future teachers (S. Lisova); modeling of the innovative context of professional activity of future teachers in the environment of free economic education and stimulation of self-management of innovative activity of applicants for higher education (O. Kovalchuk).

In our opinion, it is important to ensure the following pedagogical conditions when managing the process of preparation for future activities of future primary school teachers by means of “design-thinking” technology: purposeful management of the formation of motivation of future primary school teachers to carry out innovative activities and the creation and application of a joint team scheme for the implementation of innovative activities in the team of higher education students by means of “design thinking”. Let’s take a closer look.

To implement the first condition, it is important to create and ensure the strategy and tactics of purposeful formation of higher education students' motivation to innovate. Therefore, in the context of our study, it is advisable to briefly consider the essence of the concept of “motivation”, its internal and external mechanisms of functioning.

According to the dictionary of psychological terms, the concept of “motivation” means “a set of motives, evidence to justify something, call for action” [5].

Analysis of scientific sources has shown that the interpretation of the concept of “motivation” is accompanied by different approaches to determining its essence. Common to all approaches is the understanding of motivation as a process that initiates, directs and supports purposeful behavior of the individual. In addition, scientists consider the process of motivation as a set of certain factors that shape the behavior of the individual and as a group of motives, some interpret this process as a determining direction of behavior and activity of the organism.

Preparing future primary school teachers for innovation activity involves purposeful formation and maintenance of professional motivation as a holistic, complex personal education, integrative personality traits, which is part of the system of its value orientations and, in some way, provides a search for the meaning of professional activity.

There are many approaches to determining the structure of professional motivation. However, common in understanding the structure of professional motivation is that all scholars include in this concept of external and internal motives. For instance, W. Shevchenko and D. Jogan in their research identify five main groups of motives that drive the behavior of the individual to master professional competencies

[4, p. 205]: social motives; cognitive motives; motives of self-actualization of personality; motives of prestige of the profession; motives-coercion.

Understanding the dominant motives that drive a person to master professional competencies in a particular specialty is important for the development and implementation of a management mechanism for motivating future primary school teachers to innovate.

By “managing the formation of motivation of future primary school teachers to innovate” we mean the process provided by a set of purposeful influences of the collective subject management of all factors of the educational environment that contribute to increasing the level of internal motivation of higher education seekers to master the professional competencies necessary for further professional activity, in particular, for innovation.

To characterize the second pedagogical condition, it is appropriate to consider the concepts of “teamwork” and “scheme of innovation”. Teamwork skills are one of the key ones in the professional profile of primary school teacher.

Understanding team dynamics is the starting point for organizing teamwork and choosing the way in which such work will achieve the most effective results. Here it is important to ensure and maintain the effectiveness of activities by forming a deep understanding of the nature of individuals and how they interact with other team members. Scientists identify five stages of team building [7].

The first stage of “Formation” is marked by the fact that team members meet and unite with similar goals; define the tasks of further activities and distribute responsibilities among themselves. During the activation phase, team members begin to look for ways to solve certain tasks; at this stage, relationships between team members begin to develop. The next stage in the formation of the team “Standardization” – is characterized by the emergence of the first real practices for solving certain problems. Not all teams move to the next stage of “Implementation”, but the participants of those teams that still move to this stage are characterized by a high level of independence and motivation; team members perform tasks as a whole without external control. The cycle of functioning of the team ends with the stage of “Disbandment”, during which team members summarize the experience gained, summarize solving pre-set tasks; as a result of the stage the team disbands or starts a new cycle with new common goals [7, p. 24–25].

Thus, a team is organized from a group of people who have something in common, such as educational goals. The effectiveness of such teamwork will depend on the extent to which its participants are: willing to listen to each other; have a common understanding of the goals and objectives of their activities; resolve differences of opinion positively and openly; demonstrate the team's values in the daily

activities; exchange feedback with respect for each other's feelings; feel comfortable discussing their work with each other (Takmen B.).

To qualitatively meet these conditions, it is important to manage the creation of a favorable team ecosystem by creating a joint scheme for pedagogical innovation in the team of applicants for higher education. In the "Academic Explanatory Dictionary of the Ukrainian language" the concept of "scheme" is defined as "a plan for building, organizing something" [6, p. 2].

D. Purak considers the "joint team scheme of innovation" as a basic structure that allows rationalizing the mastery of the basics of pedagogical innovation in the free economic zone [9]. Accordingly, the joint team scheme of innovation implementation can be interpreted as an extended stencil formula for pedagogical innovation activities in the team of higher education seekers. The creation and application of such a scheme will promote a deeper understanding of higher stages and tasks of innovative pedagogical activities in higher education and will increase the level of internal motivation of higher education, in particular, will enhance cognitive and social motives.

We assume that the purposeful implementation of the presented pedagogical conditions will systematize the theoretical knowledge of future specialists in creating and providing innovations, will develop relevant skills in simulated educational situations according to a clear scheme similar to the real algorithm of innovation in general secondary education. As such work will be carried out in a team that takes into account the needs of each participant, it will help increase the level of motivation of each higher education student to master innovative activities.

**Conclusions.** Thus, for the development of a modern educational environment, it is important to understand the educational needs of students at the local, regional, national and international levels and meet them through innovative pedagogical activities.

Accordingly, it becomes important to purposefully involve future primary school teachers in innovation processes. To do this, it is appropriate to use different learning technologies, in particular, the technology of "design thinking".

The pedagogical conditions of work with future specialists are substantiated: purposeful management of the formation of motivation of future primary school teachers to carry out innovative activities and the creation and application of a joint team scheme for the implementation of innovative activities in the team

of higher education students by means of "design thinking".

The prospect of research in this direction is further experimental testing of pedagogical conditions for managing the preparation of higher education students for innovative activities by means of technology "design thinking".

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