

**INNOVATIVE PROJECTS AND STEM EDUCATION
IN PERSONALITY DEVELOPMENT THROUGH THE PRISM
OF ALL LINKS OF EDUCATION IN UKRAINE**

Oxana Hevko

Ph.D., Associate Professor, Drohobych State Pedagogical University of Ivan Franko, Ukraine
e-mail: hevko.ohana@gmail.com, orcid.org/0000-0002-9051-6021

Lyudmila Savchenko

Ph.D., Associate Professor, Municipal Institution “Kharkiv Humanitarian and Pedagogical
Academy” of the Kharkiv Regional Council, Ukraine
e-mail: savchenkoluda1970@gmail.com, orcid.org/0000-0002-5378-4078

Summary

The paper studies the innovative projects in the development of personality through the prism of all levels of education in Ukraine in the process of professional training of pedagogues of preschool education institutions and higher school. Problematic issues concerning on theoretical and practical training of pedagogical workers of preschool education institutions and higher school are investigated. The pedagogical conditions of creation of professional competence of pedagogical workers of preschool education institutions and higher school are investigated. It is established that the reform of education in Ukraine involves a radical restructuring of the management, which requires a significant increase in the professionalism of management. The experience of applying pedagogical innovations in the training of future pedagogues of preschool education institutions and higher school is analyzed including multimedia lectures, interactive communication, game modeling, innovative projects, trainings. It is established that the use of practice-oriented innovation projects in the training of future pedagogues of preschool education institutions and higher school allows them to more fully develop their professional needs and interests, helps to acquaint with the specifics of professional activities, arouses interest and need in the formation and application of innovative technologies. The characteristic features of STEM-education have been identified, which are important in the training of future pedagogues of preschool education institutions and higher school. It is investigated that an important tool on which the effectiveness of the development of the professional position of pedagogues of preschool education institutions and higher school depends is the constant self-improvement of professional activity. The functions of the process of self-improvement of the pedagogues professional activity are determined. Thanks to the update of the Laws of Ukraine “On Preschool Education”, “On Education”, “On Higher Education” and the implementation of the National Doctrine of Education for 2021-2022, the Concept of “New Ukrainian School”, the Concept of Pedagogical Education received positive results education and higher education.

Keywords: pedagogue, preschool education, higher school, innovative projects, personality development.

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1. Introduction

The modern system of higher education in Ukraine is undergoing an era of active reform, which, in turn, determines the latest priorities and objectives of preschool education institutions and higher school, including the organization of a qualitatively new level of training for future pedagogues and educators. Today the higher education institutions are characterized by a transition from training pedagogues capable of transferring certain professional knowledge and the formation of specific skills, to training pedagogues of innovators who can teach education applicants to learn, research, think critically, set goals, find ways their implementation, anticipate the consequences of their actions. This problem can be solved through the use of innovative education, widespread introduction into the training of future pedagogues of innovative pedagogical technologies and projects. The success of the development of all levels of education in Ukraine largely depends on the quality of professional training of pedagogues and educators.

Due to the globalization processes taking place in the world, there is a need for a socially and professionally active pedagogical worker who has a high level of qualification, professional mobility, independence, ability to constantly improve their professional skills and further professional growth. Therefore, competitive pedagogues must have professional skills based on modern specialized knowledge of the field and a high level of professional qualification based on critical thinking and the ability to use theoretical knowledge in practice, so it is important to study the features of innovative projects in personal development through the prism all levels of education in Ukraine.

A small number of scientists study the topic of research of the innovative projects in the development of personality through the prism of all levels of education in Ukraine. In particular, the scientific works of I. Osadchenko, I. Pidlipnyak, L.V. Kozak, S.O. Sysoeva, N.O. Goncharova, O.V. Temchenko, N. Volkova, O. Lebid, S. Davydova, devoted to the analysis of problems of educational and pedagogical innovations, application of pedagogical technologies, improvement of technologies of preparation of future pedagogues, however, the question of application of the pedagogical innovative projects in preparation of future pedagogues of preschool education institutions and higher school is not sufficiently covered.

However, despite the large number of original and meaningful scientific works of both foreign and domestic scholars on the subject, it should be noted that there are virtually no studies on the analysis of the innovative projects in the development of pedagogues through the prism of all levels of education in Ukraine.

The article purpose is to study the innovative projects in the development of personality through the prism of all levels of education in Ukraine, in order to form effective activities in educational institutions. To achieve this goal, the following tasks are defined:

- 1) to analyze the process of training future pedagogues of preschool education institutions and higher school;
- 2) to characterize innovative projects and technologies in the development of pedagogues of preschool education institutions and higher school.

During the study, general scientific and special research methods were used, including analysis and synthesis, comparison, generalization, system-structural analysis.

2. The process of training future pedagogues

Due to the growing conditions of intellectual meaningful work, competition for educational services, the problem of personal development based on the use of innovative projects in the process of quality training of innovative specialists who are able to implement

the latest educational standards and the new educational technologies. The effectiveness of educational institutions depends not only on the programs of training and education, but also on the personality of the pedagogue, his relationship with education applicants. A highly qualified and observant pedagogue combines in his practice and professional activity the general theoretical achievements of pedagogy, his own innovative experience, personal preferences and features of education applicants with whom he works. Therefore, even the most perfect theory cannot give a comprehensive answer as to what a pedagogue should be, but it is the basis on which pedagogues must rely in the course of personal development.

O. Dukhnovych argued that a person who dedicates himself to raising children should “by nature be chosen for it”. J.A. Comenius compared the pedagogue with an architect, a gardener, a military leader and a sculptor. Along with the great social role, J.A. Comenius appreciated the humanistic orientation of the personality of the pedagogue, who is obliged to be a leader, a friend of his education applicants (*Osadchenko, 2017*).

According to F. Froebel, there should be an inner unity between the educator and the child in mood, life, joint activities and play. The child will be revealed if the artist of pedagogical business, and not the craftsman will work with it (*Frebel, 2004*).

The ideas of outstanding pedagogues regarding the pedagogues personality are still relevant today. The modern educator must strive for self-improvement in the context of the ideas of humanization of education, must know and be able to apply the achievements of science, create original methods of teaching children, pupils and students, work effectively with parents and the public. The key to successful pedagogical activity of both educator and pedagogue are their erudition, modern worldview, objective self-esteem, pedagogical tact, professional qualities, psychological and pedagogical education, ability to work with education applicants (*Bielienka, 2006*).

Education reform in Ukraine involves a radical restructuring of management, which requires a significant increase in the professionalism of management. Meeting this need involves finding new and more effective ways to train management staff capable of effective leadership based on experience and current achievements of psychological and pedagogical disciplines, to take the initiative to restructure the educational process, transforming it within the new model of educational institution.

The analysis of modern practice shows the existing contradictions between the current requirements for methodological service and the level of knowledge, skills and abilities of education applicants - future pedagogues and organizers of preschool education, which ensures the successful implementation of these requirements. One of the weakest points of training the future pedagogue is that he is given knowledge of the basic of sciences, which he will teach and almost do not give the knowledge about how to raise a child, pupil or student (*Lynenko, 1995*).

At the present stage, the requirements for the quality and efficiency of educators are growing. Methodical services play an important role in improving their psychological and pedagogical training and improving pedagogical skills. The first link is the methodical service of the preschool educational institution, which should organize the work, so that the educator could not only replenish their professional knowledge, but also implement it in practical work with children, contributing to the child’s development as a person. At the same time, the task of the methodist is to help educators understand the need to change the tactics of communication with the child, namely:

- the refusal of dictation, when dominated by prohibition, demand, threat, order, shout;
- the transition to partnership with education applicants, to dialogue, to the establishment of trust, which provides the child with a sense of security, emotional well-being, trust, joy of life.

Without rejecting the main methodological forms of work with pedagogues, such as pedagogical councils, consultations, group reviews, seminars, workshops, we should strive to fill them with new modern content, aligning it with the Basic component of preschool education. According to the developers of the new program, its difference from the previous ones is that this is the first development program in which the emphasis is shifted from didactic to developmental and educational, which corresponds to the modern interpretation of tasks. Therefore, the program is quite complex, requires thorough psychological and pedagogical knowledge of educators of preschool education institutions (*Bielienka, 2006*).

The program of the new model and preparation of education applicants for its implementation in practice is defined as the priority of all pedagogues. Methodical training of the future pedagogue of preschool education institutions is to master the activities that are due to the structure and functions of preschool methods of education. The future specialist in preschool education must master scientific and methodological training in a number of disciplines: organization and management of preschool education institutions, theories and methods of physical education of children, theories and methods of native language development of children, theories and methods of basic mathematical concepts, basic of fine arts. The particular importance in the scientific and methodological complex is given to basic preschool educational institutions, where students have the opportunity to observe and analyze the work with children, educators, as well as implement their own educational innovative projects of teaching and educating children (*Bielienka et al., 2009*).

At the present stage of development, the Ukrainian educational space needs radical changes. It is necessary to improve not only the educational system, but also to improve the training of pedagogues. First of all, the quality of the pedagogical process depends on the pedagogue, his competence, which formed during professional training. Modern preschools need educators, and higher schools - pedagogues who need to constantly improve their teaching skills, improve their professional level. However, this requires a deep inner motivation and the desire to work independently.

Thus, in order to successful professional activities, as a preschool pedagogue, and as a high school pedagogue will must master a certain set of knowledge, skills, and cultivate positive personal qualities. The unity and interaction of these qualities is determined by the prerequisite for the effective implementation of professional functions of the preschool pedagogue, among which are: the care for children, that is to ensure the livelihood of children based on advanced methods and technologies of teaching; taking care of their health; formation of positive emotions; creating a rational educational environment; carrying out health-improving measures. The educator should aim: to study the individual and personal characteristics of children; collection and analysis of the facts of their behavior, establishing the causes and consequences of the actions of education applicants; designing the development of the personality of each child and the children's team in general; assimilation of best practices and new pedagogical technologies.

The implementation of program tasks in preschool education institutions and higher schools largely depends on the competence of pedagogues, and this is primarily from the representatives of methodological services at all levels. Implementation of new concepts of education, which require the pedagogue to actively and creatively to implement the ideas of interactive personality-oriented education and training, able to bring progressive ideas into their activities, change outdated approaches with new ones (*Pidlypniak, 2013*).

3. Innovative projects in development of the pedagogues

In modern conditions for free orientation in the information space, the future pedagogue and educator must have an information culture as one of the components of general culture, which is the ability to extract information from various sources: both periodicals and electronic sources and be able to use it effectively; in mastering the methods of analytical and synthetic information processing; as well as in the knowledge of the peculiarities of information flows and information support in the field of their future professional activity. To do this, throughout the training it is necessary to carry out continuous training of future pedagogues and educators in the field of information technology and introduce the new information technologies in the educational process (*Minich, 2008*).

One of the most popular and promising innovative instruments in the education are multimedia technologies that use advances in information technology in the educational process. Today, in higher education institutions in order to support and enrich the educational process often use such multimedia products as: subject lectures-presentations (created by pedagogues); multimedia computer training systems (electronic manuals, simulators, encyclopedias, etc.); audio and video training materials; educational web-sites. Today, multimedia technologies have made it possible to change the form of lectures and seminars. The variant of lecture visualization with the use of multimedia arose as a result of the search for new forms of implementation of the didactic principle of clarity.

In recent years, the use of multimedia computer slides to illustrate speeches with the display of the most important facts, graphs, tables, illustrations, audio and video has become more widespread. The form of multimedia presentation, which was previously used by pedagogues to explain the material, is now used by education applicants when speaking at seminars, project defense etc. This form of student work has a direct professional orientation, as it teaches them to organize and present the material that is typical of modern educational institutions in most countries.

Thus, the introduction of modern information technology in the training of future pedagogues and educators enriches their knowledge of new forms and methods of work in preschool education institutions and higher schools, provides opportunities for future creation of their own innovative methods of teaching disciplines in education and promotes more effective learning of the professional knowledge and their implementation in educational, creative and research activities.

The method of innovative projects is one of the pedagogical technologies, which is based on creativity, the ability to navigate in the information space, independently construct their knowledge, quickly adapt to the conditions of professional activity. There are the following types of innovative projects: research, creative, game, information and practice-oriented. Research and practice-oriented projects have the special importance in the professional training of future pedagogues. Research projects are performed according to the logic and structure of scientific research and are used in the process of research activities. These include the preparation of essays, abstracts, analytical papers, articles, reports at scientific conferences; the study and generalization of advanced pedagogical experience in higher education; diploma theses, etc.

The use of practice-oriented projects in the training of future pedagogues and educators allows them to more fully develop their professional needs and interests, helps to familiarize with the specifics of professional activities, arouses interest and need to create and apply innovative technologies. Such innovative projects include: the development of recommendations, plans and measures of educational nature; the preparation of collections of pedagogical tasks, videos,

multimedia products for professional purposes, etc. An innovative project requires a carefully thought-out structure and the scenario of its participants with the definition of the functions of each of them and the intermediate and final results (Kozak, 2011).

Modern education needs an active, creative, innovative pedagogue, who can be educated only by implementing in pedagogical practice strategies for the development of critical thinking, which is to “awaken consciousness” when the future pedagogues is aware of the realities around him and seeks solutions. This approach is inextricably linked to the use of active and interactive technologies.

Interactive learning as a necessary condition for innovative education involves the use of a system of methods aimed at active mental and practical activities of future pedagogues. These include problem lectures and seminars, thematic discussions, brainstorming, round tables, business and role-playing games, trainings, etc. In the practice of professional training, game interactive technologies are widely used, which are based on game modeling.

The game modeling involves solving problems related to professional activities, careers and human relationships. Participants in the learning process according to the game model are in different conditions than in traditional learning. The education applicants are given maximum freedom of intellectual activity, which is limited only by specific rules of the game: 1) education applicants choose their role in the game; 2) they make assumptions about the probable development of events; 3) they create a problematic situation; 4) they look for ways to solve it; 5) they take the responsibility for the chosen decision (Kozak, 2012).

Today, training has become the most common interactive technology among the methods of game learning, which contributes to the formation of practical skills of the future pedagogue. The main purpose of the training is to practice and master behavioral skills, ideas that are necessary to perform a particular professional activity. A methodological feature of educational training is the possibility of using it not only as a method of teaching, but also as a combination of active methods.

Depending on the tasks in the practice of training future pedagogues, the training takes different forms, which can be divided into two large groups:

- focused on the acquisition and development of professional skills and skills of business interaction that help increase the effectiveness of organizational activities (training for the development of presentation skills and abilities, creativity, sensitivity, resolving interpersonal conflicts, etc.);

- aimed at deepening the experience of analysis of communication situations (motivational training? leadership training, public speaking, etc.) (Honcharova, 2020: 128 -129).

4. Features of STEM-education

Today in the world, in particular in Ukraine, STEM education is actively developing, which unites pedagogues of the natural cycle through the integration of four main components: Science, Technology, Engineering, Mathematics and is based on principles of involving participants in the educational process in research and engineering activities (see Fig. 1). Combining the efforts of subject pedagogues through the construction of interdisciplinary links is an integral part of the professional competence of the pedagogue.

The inclusion of elements of STEM-education is important in the training of future pedagogues, as well as in the program of training, retraining, in-service pedagogue training, where it is important to include issues such as: general concepts of STEM-education, application of STEM-education in teaching education applicants, creation of STEM-projects, use of STEM-technologies, etc. The main

advantages of STEM education are the increase of professional competence of pedagogues in the following format: accessibility, mobility, free, time saving, individual pace of learning, communication in cyberspace, acquaintance with modern innovations, in particular, models of STEM-education, creative approach, improvement of professional skills, etc.

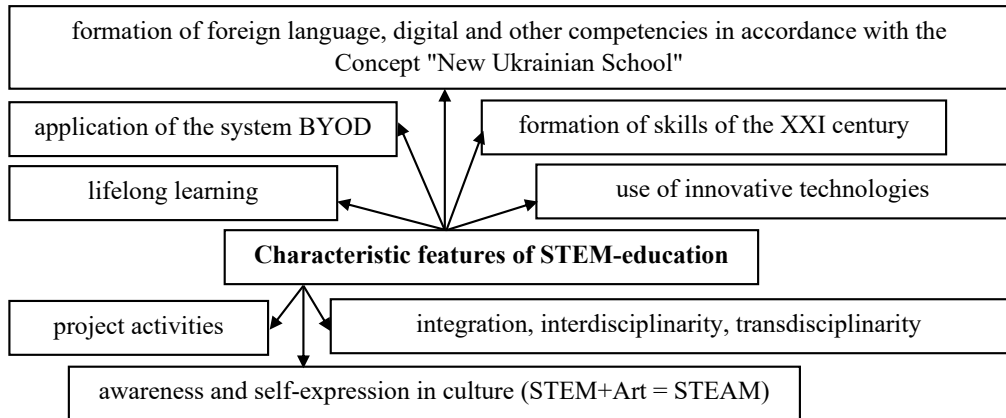


Fig. 1. Characteristic features of STEM-education

Source: Compiled by the authors based on official data of (Temchenko, 2016: 263).

Thus, the modern education system requires the development of the pedagogues abilities and desire for self-education and self-improvement, active attitude to life and professional growth as the basis of professional position and an important condition for competitiveness of professionals in the labor market. Another tool on which the effectiveness of the professional position of the pedagogue depends is constant self-improvement – conscious professional activity of the pedagogue in the system of his continuous pedagogical education, which is aimed at improving the professional level, professional self-realization, further development of professionally important qualities, interests, needs and opportunities of education applicants, as well as the requirements of society, personal and professional development (Temchenko, 2016: 264-266).

Figure 2 shows the functions that are performed in the process of self-improvement of professional activities of pedagogues.

Continuity of the process of professional self-improvement forms the ability of the pedagogue to determine the prospects of his professional growth and feel the constant need for it, regardless of the degree of improvement of the system of pedagogical activity (Temchenko, et al., 2020: 179).

Such changes were preceded by a number of scientific studies on the training of educators, pedagogues with the best european and world experience in pedagogy, which took place in the form of the following legislative updates: Law of Ukraine “On Education” (Pro osvitu, 2017), Law of Ukraine “On Higher Education” (Pro vyshchu osvitu, 2014), Law of Ukraine “On Preschool Education” (Pro doshkilnu osvitu, 2001), National Doctrine of Education Development for 2021-2022, Concept of “New Ukrainian School” (Pro skhvalennia Kontseptsi, 2016), Concept of Development of Pedagogical Education (Pro zatverdzhennia kontseptsii, 2018), practical implementation (experiment – implementation of the Concept of New Ukrainian school ”2017–2023) showed positive results and continue to demonstrate (Davydova, 2019).

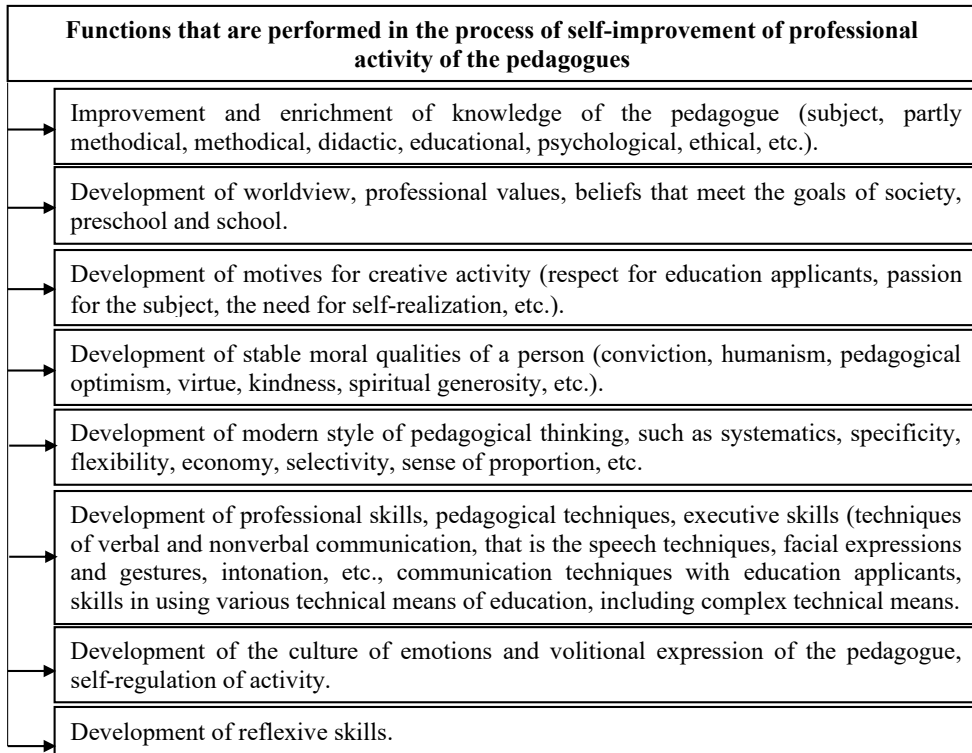


Fig. 2. Functions that are performed in the process of self-improvement of professional activity of the pedagogues

Source: Compiled by the authors based on official data of (Temchenko, et al., 2020: 179).

5. Conclusions

Based on the study, it can be concluded that the study of innovative projects in the development of personality through the prism of all levels of education in Ukraine is becoming increasingly important. The importance of the development of the education sector and a consistent state educational policy focused on obtaining a qualitatively new result, namely improving the professional skills of pedagogues, which would meet the state and trends of the world educational society and generally accepted international and european standards.

It is determined that in the system of innovative professional training the personal potential of the future pedagogue and his ability to be the subject of innovative activity comes to the fore. Thus, the needs of modern education require the creation and application of innovative pedagogical technologies and projects aimed at forming innovative thinking of future pedagogues, a system of professional competencies for innovative professional activities. Technological literacy is becoming the dominant characteristic of the modern pedagogue, provides a transition to a qualitatively new level of efficiency and optimality of the organization of the educational process.

Prospects for further research are to develop appropriate training for future pedagogues through the use of innovative projects in personal development through the prism of all levels of education in Ukraine. The study does not cover all aspects of this problem. A further direction of the author's research is the analysis of the system of professional training of preschool and higher education pedagogues due to the conditions of modernization of education, which will stimulate innovation and educational activities and increase the provision of educational services and improve current quality of education.

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