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Traditions and Innovations: Two Poles of Education of the Future

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Abstract: In this article one made a review of the literature based on the relationship between traditions and innovations in the pedagogical process over the last decade. In the article one summarized domestic and foreign scientists opinions on the topic of combining traditional and innovative forms and methods, their relationship and complementarity; the importance of traditions for the implementation of innovative models of education is considered; it is emphasized that the pedagogical tradition contains many elements, performs various functions and is reflected in a significant number of pedagogical technologies and methods, forms and means.

Based on a full-text analysis of about 16 articles published in well-known databases and scientific journals, the study revealed the support of the vast majority of researchers concerning innovative

educational methods. All the cited scientists have the idea that the introduction of innovations renews and strengthens the educational process. They focus readers' attention on the interaction of traditional and innovative teaching methods, since according to the waste majority of scientists, without preserving pedagogical traditions, the modernization of educational systems is unlikely to bring significant positive results.

At the same time, in the entire collection of researched articles, there are several authors who consider traditional education to be more effective than innovative education.

According to the scientist's opinion, these two phenomena are not only interconnected and mutually determined, but also do not exist as separate phenomena. In other words, the tradition is an integral part of innovation, and pedagogical innovation always includes traditionally oriented elements.

Keywords: traditions, innovations, education, relationship, experience, traditions and innovations in the pedagogical process, innovative models of education, traditional models of education.

Introduction

The modern education is a meaningful, valuable and culturally creative combination of the past, present and future. It is for this reason that the study of the unity of traditions and innovations, as the two poles of future education, is relevant today (Humeniuk et. al., 2022; Voropayeva, et. al., 2022). Traditions are the stabilizing element of education development, which makes it possible not only to transmit the historical memory and spiritual and cultural energy of the nation, but also the meaningful guidelines for the life-creating activity of each individual. At the same time, the use of traditional forms of education should not interfere with the search for innovative forms and technologies of the educational process, because the creation of an innovative model of education is one of the worldview foundations of the transformation of the educational system.

The balance between traditions and innovations pertains not only to the narrow professional dimension of education but also addresses pertinent issues in education at large, namely:

- Information-media educational content (Aldahdouh et al., 2020).
- National-identification educational aspects (Bendapudi et al., 2018).
- The social context of educational progress (Hertel, 2017).
- Sociocultural design of the education system (Kickul et al., 2018).
- Pragmatic-practical factors in the educational process (Leron & Bacongus, 2021).
- The financial-economic segment of the education sphere (Panigrahi, 2018).
- Technological support for educational activities (Sanchez-Gordon & Luján-Mora, 2018).

It is worth noting a certain reorientation of the innovative element in education. If the turn of the 20th to the 21st century was a continuation of the process of intensively saturating education with innovative components, there is currently a reverse tendency – educational activity becomes a factor in innovation development (Müller, 2021). The paradigm of Education 4.0 (Bonfield et al., 2020) is associated with the simultaneous development (traditional dimension) and progress (innovative dimension). The actualization of critical, creative, digital, design thinking (Wrigley & Straker, 2017) in the educational process is a factor that normalizes the balance between fundamental traditionalism and dynamic innovativeness.

Research Problem

Traditions and innovations in education remain important areas of research. Pedagogical activity in the current conditions is not possible without the use of pedagogical, scientific and methodical traditions. However, traditional forms and methods of pedagogical activity that have existed for many years must be rethought and adapted to new conditions. Features of science and technology development, high requirements for specialists in any field necessitate the introduction of innovations in the education of the future.

Research Focus

The material was formed on the basis of the analysis of publications of Ukrainian and foreign scientists and reflects the degree of interconnection of traditions and innovations in the educational process in modern conditions.

The object of research is traditions and innovations in education.

Research Aim and Research Questions

The main purpose of this article is to analyze the views of domestic and foreign scientists on the possibility of combining traditional and innovative forms and methods in modern education, on their relationship and complementarity.

To achieve the goal, the following tasks must be solved:

- 1.To consider the interpretation of the concepts of "tradition" and "innovation" in domestic and foreign sources.
- 2.To explore new trends and innovations in education.
- 3.To justify one's own vision regarding the connection between tradition and innovation.

Research Methodology

In the process of this scientific research, such methods of scientific knowledge were used: analysis of scientific and pedagogical literature, study, systematic approach (used when explaining the differences between traditions and innovations).

Research Results

Interpretation of the concepts of "tradition" and "innovation" in domestic and foreign sources

Education plays an important role in the society. This is the most important sphere of social life; the economic, political, intellectual, cultural and moral state of society depends on its functioning.

It is undeniable that the formation of a modern model of education should be oriented towards the interests of the future. But at the same time, the educational paradigm should exist taking into account general traditions. Thus, in his professional activity, the modern teacher is in a contradictory situation, where, on the one hand, he or she must anticipate changes and be an innovator, and on the other hand, he or she must preserve and reproduce existing values. Such a position corresponds to the

duality of the educational process itself, which includes both tradition and innovation, preservation and development.

Currently, there are also discussions among researchers about the dominant position in the development of such integral elements as tradition and innovation. There is a constant substantiation of what is considered a fundamental element of educational development: traditional or innovative developments of a pedagogical nature.

Different interpretations of the concepts of tradition and innovation testify to the ambiguity of their meaning for researchers. Reference to the past is made through tradition.

Most often, the tradition is understood only as a backward, obsolete ancient connotation that no one needs, that hinders the development of the legacy of the past, which is senselessly reproduced in the present. From another point of view, traditions in the pedagogy of any nationality have always been the basis for building a national educational system, because only folk traditions that have come out of life and have been tested by life can be axiomatic. Traditions that arose in ancient times play a decisive role in the upbringing and education of new generations.

The tradition appears in the world as a kind of way out of the crisis of life - by creating new forms of ancient canons. The difference between traditional and innovative in society lies mainly in the forms of cultural elements that make up the system, and not in its deep foundations associated with tradition. Social stability is achieved by expanding the boundaries of culture, the basis of which is tradition. It broadcasts positive universal values and stereotypes that are valuable for the successful development of society. Thus, in modern conditions, there is an urgent need to create a cultural foundation and a strong value foundation for the further development of traditions and the spiritual evolution of society.

Therefore, a tradition can be recognized as a stabilizing element in the development of education both at the general social level, where it contributes to the preservation and transmission of «historical memory», the spiritual and cultural energy of the nation, and at the individual level, where tradition is a meaningful justification for further life-creating activities of each individual.

The analysis of publications on the research topic showed that the vast majority of scientists focus on the interaction of traditional and innovative teaching methods. However, there are those who consider traditional education more effective.

For example, according to Liu and Long (2014) "The traditional teaching is the most direct and effective method. Teachers control and inspire students effectively when the students encounter problems or arise conflicts, they take flexible teaching method adjusting the content according to actual requirement under the general teaching arrangement, which is not only conducive to cultivate the basic technique but also for the good habit in forming students' self-study ability. Teachers' action and language become the target imitated by learners, whose outlook towards right and wrong, attitude, value orientation and academic level have great impact on students".

Traditional teaching methods have been used in schools for decades and are still actively used by teachers. Of course, criticizing or, conversely, refuting criticism of traditional teaching methods is currently a controversial issue. After all, there are traditional teaching methods that have passed the test of time and which teachers will be able to apply in practical activities in the coming years in combination with innovative methods. These are such learning technologies as narration, explanation,

conversation, educational discussion, work with a textbook, demonstration, exercise, and laboratory, practical and independent work. Like any learning technology, traditional education has its strengths and weaknesses. Among the advantages, the first is the systematic nature of training; orderly, logically correct presentation of the material; organizational clarity; optimal consumption of resources during mass training. The main disadvantage of the traditional education system, according to the vast majority of scientists, is the resulting inability and unwillingness of children to actively study, the unformed value attitude towards their own development, education and society in general. At the end of the 20th century, pedagogy advanced the transition to person-oriented education, as society in general requires school graduates to consciously and responsibly make choices in various life situations. The achievement of such qualities by a person is declared to be the main goal of education and upbringing, in contrast to the formalized transfer of knowledge and social norms to the student inherent in the traditional education system.

Innovative learning is an educational and educational activity oriented to dynamic changes in the surrounding world, which is based on the development of various forms of thinking, creative abilities, and high social and adaptive capabilities of the individual. Such training stimulates innovative changes in culture, social environment; focused on the formation of individual readiness for dynamic changes in society due to the development of creative abilities, various forms of logical and imaginative thinking, as well as the ability to cooperate with other people.

Innovative pedagogical activity, based on the understanding of advanced practical experience, is focused on the change and development of the educational process with the aim of achieving higher results, forming a qualitatively different pedagogical practice.

In the pedagogical interpretation, «innovation» should be considered as a special form of pedagogical activity and thinking aimed at organizing innovations in the educational space, or as a process of creating, implementing and spreading new things in education.

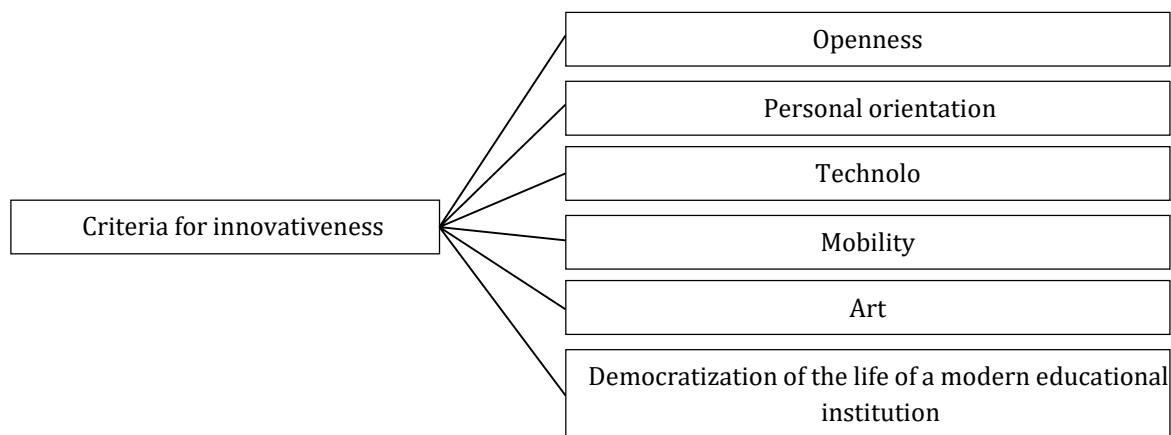
Innovation in education is the process of creating, implementing and spreading new ideas, methods, pedagogical and management technologies, as a result of which the level of achievements of the structural elements of education increases, the system transitions to a qualitatively new state.

Another definition of innovation in education is the concept. According to Findikoglu and İlhan (2016) «innovation is a concept that connected societies and future economics. It is a way of finding the best alternative ways of changing individual behaviors in the individual when the existing ways such as learning theories, learning tasks, teaching methods, and learning approaches are not working effectively» (Findikoglu & İlhan, 2016). The innovative process in education is a series of consistent, purposeful actions aimed at its renewal, modification of the purpose, content, organization, forms and methods of education and training, adaptation of the educational process to new socio-historical conditions of education. Innovation in education is a sign of modernity. However, as noted, Zolotukhina et al. (2021) «innovation should not be understood only as the introduction of the latest forms and methods of teacher work. It includes the intensification of the creative process of teaching, the accumulation of experience in individual creative and collective creative activities, the change of relations between the subjects of the pedagogical process, the improvement of the system of independent work, the control of the increase in the level of methodical and technological culture of teachers».

Pedagogical literature contains clearly defined criteria for innovativeness (Fig. 1.)

Figure 1

Criteria for Innovativeness



Source: development of the authors (Zolotukhina et al., 2022).

Scientists have also determined the functioning of pedagogical innovations stages: familiarizing the teacher with pedagogical innovations; appearance of interest, assessment, approval, intuitive perception. Innovative pedagogical activity is such an activity, in the process of which a new original product is created. It is manifested in the values, qualities, attitudes, needs, abilities formation of the future specialist, meeting modern requirements and allows them to fully function in the modern educational space (Shatunova & Shabalin, 2014).

Serdyukov (2017) believes that «all innovations are ultimately directed at changing qualitative and/or quantitative factors of learning outcomes:

- qualitative: better knowledge, more effective skills, important competencies, character development, values, dispositions, effective job placement, and job performance;

- quantitative: improved learning parameters such as test results, volume of learned information, amount of developed skills or competencies, college enrollment numbers, measured student performance, retention, attrition, graduation rate, number of students in class, cost, and time efficiency» (Serdyukov, 2017).

Trends and Innovations in Education

New trends and innovations in education are of great interest among the scientists. One of the most extensive lists of trends and innovations in education that can pave the way to a better future was presented in Bisht and Dept's (2022) work Table 1. Note that the innovative process in education may involve innovations in methods, forms, techniques, means, in the content of education or its goals, conditions, etc.

It is quite important to note that scientists develop different classifications of innovations. So, for example, according to the degree of novelty, such types of innovations are distinguished as:

- Retro-innovative: comprises the transfer into modern practice of a phenomenon known in the past in a modified form, which due to certain historical circumstances has ceased to be used;
- Modified innovative: allows using a known approach with its partial modification;
- Combinatory-innovative: characterizes the result of combining several well-known blocks and creating a qualitatively new product;
- Author's innovative: involves the creation of a truly new creative product.

In this study, one only touched the benefits of innovative education of the future. However, according to some scientists, such education has certain disadvantages:

1. Inconsistency of educational material with modern achievements of science and technology. Due to the rapid development of the latest technologies, textbooks and lecture material may lag behind each other significantly.

2. Changing the existing structure of the education system. By this time, many online schools are registered - and over time, their number will increase. It is quite possible that soon education will have a radically different aspect.

3. The lack of live communication between the student and the teacher. During online courses or distance learning, the student does not have enough time to discuss the work, story, task, etc. This interferes with the development of an expression of one's own opinion, a view of the situation, because the computer will not become an interlocutor, as well as will not understand the depth of the student's thoughts.

Table 1

New Trends and Innovations in Education

Trends and innovations	Characteristics
1. Virtual learning	Using technology as a tool always expands the learning process potential
2. Concept based continuous learning	This type of learning not only prepares students for a better future, but also improves their understanding
3. Assessment of students by using artificial intelligence AI	This type of learning not only prepares students for a better future, but also improves their understanding
4. Gamification and self-analysis	Gamification is a learning technique that transfers game mechanics to the educational environment in order to achieve better learning results, change participants' attitudes towards the learning process, develop knowledge and student skills.
5. Experiential learning	This is learning through reflection on action. It is a process of learning through experience
6. Purposeful learning	Students need to know why and what they are studying
7. Student voice is important	Students have their own and unique perspectives on teaching, learning and education
8. ICT enabled tool for effective TL process	Incorporating ICT tools is very important for effective teacher training
9. Cooperative, collaborative and team teaching	By using cooperative learning in the classroom, we can engage students with different abilities to work together

10. Reflective teaching and reflective teacher education	Reflective learning is self-evaluation of self-learning
11. Constructivism	It involves the active participation of students in any activity. This improves learners' ability to actively solve problems and think critically
12. Flipping the classrooms	The flipped classroom (FC) is a pedagogical approach to blended learning whereby the traditional process of classroom content being normally delivered first, followed by homework, is reversed and is often supplemented by instructional videos. Flipped learning is an approach to teaching where direct instruction moves outside of class, and class time is used for active and engaging activities and providing individualized support.
13. Peer instruction/ tutoring	The method of mutual learning refers to a method in which students help each other in learning
14. Blended learning	It is also called hybrid learning, which combines online and face-to-face learning experiences with teachers acting as learning facilitators
15. Soft skills	In the modern world special importance is given to so-called soft skills – “flexible skills.” Some of these skills include: English language proficiency, as foreign communication skills are required in customer relations and communication with an international development team; team skills in project execution; effective communication skills throughout project execution, starting from the first communication with the customer to presentation of ready-made solution skills.
16. Personalized and paced learning	Personalized learning means providing a learning experience tailored to the learner's needs, his or her relationship to special skills, preferences, and experiences
17. Global and multicultural education	A multicultural/global education is an education that seeks to prepare students for «leadership, membership, and followership» in their community, state, nation, and world
18. Enquiry based instruction	This type of learning enhances students' problem-solving skills
19. Time management	The implementation of innovative strategies requires adequate time, and sometimes the lack of time management works as a factor that resists innovation
20. Mentor issue	Mentoring in mentoring is also very important for innovation and best practices. Lack of good mentoring is a critical issue that resists innovation and best practices
21. Lack of fund	Lack of funds is the main obstacle to using a new technology or technique

Source: development of the authors (Bisht & Dept, 2022; Dalbani, et. al., 2022; Glazunova et.al., 2022; Pacheco et al., 2020).

Own Vision Regarding the Connection Between Tradition and Innovation

The world is rapidly changing. But unfortunately, education remains one of the most conservative sectors in it. To keep up with the digital world, it has to reinvent itself.

The modern system of domestic education is in a protracted reform. Like many years ago, the dispute continues between the traditions that are the legacy of the Soviet Union and innovations that are oriented to world educational standards.

One tried to summarize the fundamental differences between traditional and innovative approaches to education.

Table 2

Traditions and Innovations: Two Poles of Future Education

Educational process components	Traditions	Innovations
<i>Goal</i>	1. Transfer of knowledge. 2. Acquaintance with culture. 3. Assimilation of social experience	Promotion of self-realization and self-affirmation of the individual
<i>Contents</i>	1. Knowledge 2. Proficiency. 3. Skills.	1. Knowledge 2. Values 3. Competencies
<i>Forms of work</i>	1. Individual. 2. Frontal	Various forms of joint activity, independent work, productive and creative search
<i>Methods of work</i>	1. Reproductive 2. Explanatory 3. Illustrative	Research methods
<i>Management style</i>	Authoritarian	Democratic
<i>Interaction of the participants</i>	An education seeker is an object of all kinds of educational influences; a teacher is an employee, a translator of knowledge	The learner is the subject of learning, the teacher is a friend and assistant
<i>Control</i>	External	Internal
<i>Learning outcome</i>	An uninitiated person who does not adapt well to the realities and changes in life, with isolated fragments of knowledge	An initiative, developed and self-confident person who is able to navigate in the conditions of a changing world

One emphasizes that traditions are not only protected, preserved and transmitted knowledges and experiences. The tradition has the right to life only if it is of a creative nature that meets the requirements of modernity. This implies following both traditions and innovations as a socio-cultural phenomenon of pedagogy, which ensures a sustainable and dynamic development path that maintains a balance of traditions and innovations in education (Ellis et al., 2019). In order to successfully accomplish educational tasks solutions and learning requirements, it is necessary to constantly correlate the activities carried out in the classroom with the planned educational activities, the methods of their implementation, interconnect with the obtained results, and determine their compliance with the conditions.

The education of the future is built on the best traditions of domestic pedagogy and the search for new forms, methods and content of education. A necessary condition for the further development and further self-improvement of the domestic education system is a relying on the best created in the domestic and world educational space.

One believes that the traditions heredity as well as the desire for innovations should also be embedded in the very content of the educational activity of each educational process subject. This enrichment of the content of education will ensure not only the systematic development and modernization of the educational complex, but also contribute to the integrity of the education in general and educational life-creating strategy of any individual who will study throughout his life, combining already acquired knowledge with their own innovative and creative orientations

Conclusions and Implications

The pedagogical tradition contains a significant innovative potential; its usage carries out further development in the space and time of its culture. Indeed, what was once an innovation in education, having gone through a long process, has turned into tradition.

The teacher can use any pedagogical methods, both traditional and innovative. But at the same time, he or she must constantly work on himself, improving his teaching skills every day. A teacher should set a good example for students not only as a representative of his profession, but also as an interesting personality capable of involving students in the learning process.

According to modern authors, traditions, transmitting what has already developed in the theory and practice of education, turn out to be a mechanism for transmitting experience from generation to generation, that is, a mechanism that ensures pedagogical continuity. Innovations, on the contrary, provide an update of what is in pedagogy at the moment.

One believes that traditional and innovative teaching methods should be in constant relationship and complement each other. Today, these two concepts should exist in synergy.

References

- Aldahdouh, T. Z., Nokelainen, P., & Korhonen, V. (2020). Technology and social media usage in higher education: The influence of individual innovativeness. *SAGE Open*, 10(1). <https://doi.org/10.1177/2158244019899441>
- Bendapudi, N., Zhan, S., & Hong, Y. (2018). Cultural Values Differentially Moderate the Benefits of Basic Education on Two Types of National Innovation Outputs. *Journal of Cross-Cultural Psychology*, 49(2), 199–222. <https://doi.org/10.1177/0022022116650259>
- Bisht, B., & Dept, E. (2022). Emerging trends and innovations in teacher education: Classroom of the future. *International Journal of Creative Research Thoughts (IJCRT)*, 10(5), 436–444. <https://ijcrt.org/papers/IJCRT2205049.pdf>
- Bonfield, C. A., Salter, M., Longmuir, A., Benson, M., & Adachi, C. (2020). Transformation or evolution?: Education 4.0, teaching and learning in the digital age. *Higher Education Pedagogies*, 5(1), 223–246. <https://doi.org/10.1080/23752696.2020.1816847>
- Dalbani, H., Eissa, S., Syed-Ahmad, S. F., & Almusharraf, N. (2022). Transitioning to flipped classrooms: Instructors' perspectives. *Sustainability*, 14, Article 13426. <https://doi.org/10.3390/su142013426>
- Ellis, V., Souto-Manning, M., & Turvey, K. (2019). Innovation in teacher education: Towards a critical re-examination. *Journal of Education for Teaching International Research and Pedagogy*, 45(1), 2–14. <https://doi.org/10.1080/02607476.2019.1550602>
- Findikoglu, F., & İlhan, D. (2016). Realization of a desired future: Innovation in education. *Universal Journal of Educational Research*, 4(11), 2574–2580. <https://eric.ed.gov/?id=EJ1118708>
- Glazunova, O. G., Korolchuk, V. I., Voloshyna, T. V., & Vakaliuk, T. A. (2022). Development of soft skill in computer science bachelor in the project learning process. *Information Technologies and Learning Tools*, 92(6), 111–123. <https://doi.org/10.33407/itlt.v92i6.5076>
- Hertel, A. L. (2017). Applying indigenous knowledge to innovations in social work education. *Research on Social Work Practice*, 27(2), 175–177. <https://doi.org/10.1177/1049731516662529>
- Humeniuk, I., Humeniuk, O., Matiienko, O., Manzhos, E., & Malyshev, K. (2022). Challenges and innovation of management in higher education: Ukrainian dimension. *Independent Journal of Management & Production*, 13(3), 329–346. <https://doi.org/10.14807/ijmp.v13i3.1984>

- Kickul, J., Gundry, L., Mitra, P., & Berçot, L. (2018). Designing with purpose: Advocating innovation, impact, sustainability, and scale in social entrepreneurship education. *Entrepreneurship Education and Pedagogy*, 1(2), 205–221. <https://doi.org/10.1177/251512741877217>
- Leron, P. J. G., & Bacongus, R. (2021). Elements of innovation culture influencing individual research and development (R&D) performance in public higher education institutions in the Philippines. *Asia-Pacific Journal of Management Research and Innovation*, 17(3–4), 137–151. <https://doi.org/10.1177/2319510X221135662>
- Liu, C., & Long, F. (2014). The discussion of traditional teaching and multimedia teaching approach in college English teaching. In J. Zhao (Ed.), *2014 International Conference on Management, Education and Social Science* (pp. 31–33). Atlantis Press. <https://doi.org/10.2991/icmess-14.2014.9>
- Müller, J. W. (2021). Education and inspirational intuition – Drivers of innovation. *Heliyon*, 7(9), Article e07923. <https://doi.org/10.1016/j.heliyon.2021.e07923>
- Pacheco, E., Palma, J., Salinas, D., & Arana, I. (2020). Gamification and self-directed learning. In *ECGBL 2020 14th European conference on game-based learning* (pp. 417–424). Academic Conferences Limited.
- Panigrahi, J. (2018). Innovative financing of higher education: Changing options and implications. *Higher Education for the Future*, 5(1), 61–74. <https://doi.org/10.1177/2347631117738644>
- Sanchez-Gordon, S., & Luján-Mora, S. (2018). Technological innovations in large-scale teaching: Five roots of massive open online courses. *Journal of Educational Computing Research*, 56(5), 623–644. <https://doi.org/10.1177/0735633117727597>
- Serdyukov, P. (2017). Innovation in education: What works, what doesn't, and what to do about it?. *Journal of Research in Innovative Teaching & Learning*, 10(1), 4–33. <https://doi.org/10.1108/jrit-10-2016-0007>
- Shatunova, O. V., & Shabalin S. V., (2014). Innovative training forms of pre-service teachers of technology for the teaching the basics of entrepreneurship. *World Applied Sciences Journal*, 29(4), 1818–4952. [http://www.idosi.org/wasj/wasj29\(4\)14/21.pdf](http://www.idosi.org/wasj/wasj29(4)14/21.pdf)
- Voropayeva, T., Jarvis, M., Boiko, S., Tolchieva, H., & Statsenko, N. (2022). European experience in implementing innovative educational technologies in the training of management specialists: Current problems and prospects for improvement. *International Journal of Computer Science and Network Security*, 22(7), 294–300. <https://doi.org/10.22937/IJCSNS.2022.22.7.35>
- Wrigley, C., & Straker, K. (2017). Design thinking pedagogy: The educational design ladder. *Innovations in Education and Teaching International*, 54(4), 374–385. <https://doi.org/10.1080/14703297.2015.1108214>
- Zolotukhina, S., Fazan, V., & Makarenko, V. (2021) Traditions and innovations in pedagogical activity. *Theory and Methods of Teaching and Education*, (50), 65–74. <https://doi.org/10.34142/23128046.2021.50.06>