

INNOVATIVE METHODS IN IMPROVING THE PEDAGOGICAL SKILLS OF TEACHERS

AUTHORSHIP

Larysa Udovychenko 

Doctor of Pedagogical Sciences, Associate Professor, Department of Ukrainian Literature, Comparative Studies and Grinchenko Studies, Borys Grinchenko Kyiv University.

ORCID: <https://orcid.org/0000-0002-5698-557X>

E-mail: udovychenko@kubg.edu.ua

Iryna Androshchuk 

Doctor of Sciences in Pedagogy, Professor, Faculty of Humanities and Pedagogy, Department of Technological and Professional Education and Decorative Arts, Khmelnytskyi National University.

ORCID: <https://orcid.org/0000-0002-8054-5574>

E-mail: ivandroshchuk@ukr.net

Olga Bigus 

PhD in Art Studies, Associate Professor, Faculty of Choreographic Arts, Kyiv National University of Culture and Arts.

ORCID: <https://orcid.org/0000-0001-8527-7073>

E-mail: olga.bigus@gmail.com

Nadiia Gorbatova 

PhD of Historical Sciences, Assistant professor, Faculty of Choreographic Arts, Kyiv National University of Culture and Arts.

ORCID: <https://orcid.org/0000-0002-2704-464X>

E-mail: gorbatova@ukr.net

Iryna Gytnyk 

PhD of Pedagogical Science, Senior Lecturer, Department of Choreographic Arts, Kyiv National University of Culture and Arts.

ORCID: <https://orcid.org/0000-0001-6492-370X>

E-mail: i.gutnyk@ua.fm

Received in:

2021-04-10

Approved in:

2021-05-11

DOI: <https://doi.org/10.24115/S2446-622020217Extra-B885p.68-76>

INTRODUCTION

In the XXI century, improving the pedagogical skills of teachers is seen through the prism of sustainable development as a holistic, transformational and collaborative learning process. Teacher professional development is a necessary condition for the quality of education (BRANDISAUSKIENE & CESNAVICIENE, 2020). At the same time, the activity of modern society is closely connected with innovations, which are gradually included in the educational process. Creativity, knowledge and technology determine the level of development of society. Thus, improving the pedagogical skills of teachers is impossible without the introduction of innovative teaching methods, which teachers use both to improve the skills of students and for their own professional self-improvement (Emo, 2015). The current demand for teachers who show high ability to innovate is an important reason for the introduction of innovative practices in the system of lifelong learning (TYUNNIKOV, 2017).

The purpose of the study is to quantitatively analyze the relationship between the introductions of innovative teaching methods and improve the pedagogical skills of teachers. Research objectives: to identify the relationship between education and innovation and its integration into the educational process; identify the factors that determine innovation and to

prove the impact of innovations on improving the pedagogical skills of teachers.

LITERATURE REVIEW

Globalization and digital technologies have radically changed pedagogy (MYNBAYEVA & SADVAKASSOVA, 2016). Scientific and technological progress and the pandemic have prompted a rethinking of teaching and learning (UNESCO EDUCATION STRATEGY, 2020). Educational technologies are constantly changing, focusing on the development of new media, practical knowledge and multitasking (YUEN, 2015). That is why there is a great need to invest in infrastructure to develop a knowledge base to improve the pedagogical skills of teachers through innovation (DONOVAN, 2017). According to The Global Innovation Index (2020), knowledge, technology and creativity are best combined in innovation in Europe. At the same time, Eurostat demonstrates an increase in adult learning (2020), which is certainly related to the development of innovation.

The teacher-training program is important for the formation of a modern specialist with innovative skills (HASAN, 2019). Digital competence becomes a key aspect of the formation of pedagogical skills of the teacher (REDECKER, 2017). Improving the pedagogical skills of modern teachers is seen through the prism of sustainable development as a holistic, transformational and collaborative learning process (BRANDISAUSKIENE & CESNAVICIENE, 2020). The Open University Institute for Educational Technology in the UK, in collaboration with the National Institute for Digital Learning in Dublin (2020), has identified the main educational components of innovative pedagogy characterized by the use of digitalization and

artificial intelligence based on post humanism. Successful innovations have a lasting positive effect in pedagogy, improving the capabilities and abilities of the learner (FERGUSON, 2019). Teachers use innovative methods both in working with students and in improving their skills (EMO, 2015). Teachers who specialize in the active use of innovative teaching methods are in demand today (TYUNNIKOV, 2017). Innovative pedagogy offers new forms of implementation of educational activities (KUKULSKA-HULME, BEIRNE & CONOLE, 2020). Personalization, communication, reflection, expansion, embodiment and scale are common components of innovative pedagogy (SHARPLES, 2019).

Innovative technologies increase the professional competence and professional development of a modern teacher (VITIUK, 2018). Introduction of innovative technologies into the educational process allows determining the ways of further scientific-theoretical and practical research of new pedagogical technologies (IVANCHENKO & MASLIJ, 2018). The implementation of innovative pedagogical technologies in the professional activities of teachers contributes to the mastery of techniques, forms, methods of knowledge transfer and pedagogical skills to improve them; possession of a high level of the best examples of advanced pedagogical experience to the constant development of pedagogical skills of teachers; introduction of theoretical and practical skills to perform professional activities with awareness of the possibilities of the teaching profession for the development of their personality (KOROTKIKH, 2018). Innovative methods allow developing the professionalism of teachers by implementing pedagogical research in practice (KOH & LEE, 2019).

A review of the literature shows the active introduction of innovative methods, which radically change the educational process and reflected in the pedagogical skills of the teacher, because these changes require constant updating of professional skills. The analysis of the literature reflects the following aspects that form innovative pedagogy and determine its methods: digitalization; Artificial Intelligence; learning with the help of open databases; mobility; personalization; post humanism; education of a conscious and active citizen. At the same time, in the future there is a need for statistical analysis of the number of teachers who improve pedagogical skills through innovative methods, considering the effects of the pandemic and identify the most effective innovative methods implemented in teacher training.

METHODOLOGY

The following methods of scientific research are used in the study of innovative methods of improving teachers' pedagogical skills: ascent from abstract to concrete, formalization, abstraction and concretization, analysis, synthesis, induction, deduction, abduction, modeling, analogy, historical and logical methods. This article uses a comparative analysis of research to determine changes in the globalization index in education and determine innovation links in terms of ten European countries during 2015-2019 based on data from The Global Innovation Index (2020) and Eurostat (2020).

Also using the Pearson correlation coefficient determined by the formula $R_{xy} = \frac{M[XY] - M[X]M[Y]}{\sqrt{(M[X^2] - M[X]^2)(M[Y^2] - M[Y]^2)}}$,

obtained data for correlation analysis to determine the relationship between innovation and the educational process in general and improving pedagogical skills in particular during 2006-2016 based on OECD materials for 2019.

RESULTS

Innovation is the main driver of modern economic development. Innovative indicators in education over the last five years show a gradual increase (see Table 1), in particular in Sweden - by 9.6, Iceland - 8, Germany - 4.3, Poland - 3.4, Switzerland and France - 3.3, Italy - 2.6, the Netherlands - 1.9, the UK - 1.5 sub-points. In Spain, on the other hand, there is a 0.7-point decrease in the innovation index in education.

Table 1. The Global Innovation Index (education), score

N. n/o	Country	Years					Changes of 2015-2019
		2015	2016	2017	2018	2019	
1	Switzerland	55.5	57.6	58.6	56.9	58.8	3.3
2	Iceland	56.4	60.7	64.7	61.1	64.4	8
3	Netherlands	58.2	60.4	61.1	67.5	60.1	1.9
4	Germany	53.5	56.9	58.5	55.8	57.8	4.3
5	Sweden	58.2	69.1	67.7	65.8	67.8	9.6
6	Great Britain	56.2	58.4	59.9	56.9	57.7	1.5
7	France	54.5	57.7	58.6	57.2	57.8	3.3
8	Italy	51.0	52.3	53.6	51.1	53.6	2.6
9	Spain	55.0	56.4	56.2	53.9	54.3	-0.7
10	Poland	53.6	57.1	57.1	55.2	57.0	3.4

Source: The Global Innovation Index, 2020.

Knowledge, technology and creativity are best combined in innovation in Switzerland (from 56.8 in 2015 to 63.0 in 2019), Sweden (from 45.5 in 2015 to 66.1 in 2019), The Netherlands (from 49.0 in 2015 to 59.0 in 2019), and Germany (from 46.0 in 2015 to 53.9 in 2019). Slightly weaker in France (from 38.4 in 2105 to 41.6 in 2019) and Iceland (from 35.3 in 2015 to 47.7) (see Table 2). Instead, during 2015-2019 there is a decline in innovation ties in the UK (by 3.3 sub-items), Poland (by 3.1 sub-items), Spain (by 2 sub-items) and Italy (by 1.1 sub-items).

The largest growth of innovation ties during 2015 - 2019 took place in Sweden (by 20.6 sub-points), Iceland (by 12.4 sub-points) and the Netherlands (by 10 sub-points).

Table 2. The Global Innovation Index (innovation linkages), score

	Country	2015	2016	2017	2018	2019	Changes of 2015-2019
1	Switzerland	56.8	51.7	57.0	57.9	63.0	6.2
2	Iceland	35.3	41.4	45.6	50.2	47.7	12.4
3	Netherlands	49.0	45.1	50.7	54.4	59.0	10.0
4	Germany	46.0	44.8	45.2	49.6	53.9	7.9
5	Sweden	45.5	45.7	52.4	56.8	66.1	20.6
6	Great Britain	53.4	50.1	48.6	50.8	50.1	-3.3
7	France	38.4	37.6	36.2	38.9	41.6	3.2
8	Italy	38.7	37.8	35.3	37.2	37.6	-1.1
9	Spain	28.5	27.4	27.2	28.3	26.5	-2
10	Poland	24.8	25.8	27.5	29.2	21.7	-3.1

Source: The Global Innovation Index, 2020.

In 2020, the global innovation index of countries determines a number of factors (see Table 3). In Switzerland, the use of information and communication technologies (3), the cost of computer software (3), universities / collaboration in industry research (2) and knowledge creation (1). Iceland is innovatively powerful in the use and access to information and communication technologies (2), innovation links (4), and the financing of the education sector (5). The innovative development of the Netherlands is determined by the absorption of knowledge (1), information and communication technologies (4), ICT and the creation of an organizational model (4), cooperation between universities and industries (5). Innovative Germany is characterized by the presence of global research and development companies (2), higher education (6), knowledge creation (5) and access to information and communication

technologies (7). In Sweden, innovation is the result of financial investment in education (3), innovative relationships (2), and the dissemination of knowledge (4) and the availability of training companies (3), as in Spain (13). Innovations in the United Kingdom (2), France (11), and Poland (41) are also determined by the presence of rated higher education institutions, and in Italy by the creation of mobile applications (60). Information and communication technologies are the basis of innovative activity of all countries without exception.

Table 3. Factors determining the innovative development of the country, rate

Switzerland					
Name of country					
Indicator	ICT use *	Computer software spending, % GDP	University / industry research collaboration	Knowledge creation	Correlation
Rank/ value	3	3	2	1	1
Iceland					
Name of country					
Indicator	Expenditure on education, % GDP	ICT access *	Innovation linkages	ICT use *	Correlation
Rank/value	5	3	4	2	1
Netherlands					
Name of country					
Indicator	University / industry research collaboration	ICTs & organizational model creation	Information & communication technologies (ICTs)	Knowledge absorption	Correlation
Rank/value	5	4	4	1	1
Germany					
Name of country					
Indicator	Tertiary education	ICT access *	Knowledge creation	Global R&D companies, top 3, mn US \$	Correlation
Rank/ value	6	7	5	2	1
Sweden					
Name of country					
Indicator	Expenditure on education, % GDP	Innovation linkages	Knowledge diffusion	Firms offering formal training, %	Correlation
Rank/ value	3	2	4	3	1
Great Britain					
Name of country					
Indicator	QS university ranking, average score top 3 *	Information & communication technologies (ICTs)	ICT use *	ICT access %	Correlation
Rank/ value	2	1	6	4	1
France					
Name of country					
Indicator	Global R&D companies, top 3, mn US \$	QS university ranking, average score top 3 *	Information & communication technologies (ICTs)	ICT access *	Correlation
Rank/ value	7	11	6	10	1
Italy					
Name of country					
Indicator	Knowledge impact	Computer software spending, % GDP	Expenditure on education, % GDP	Mobile app creation / bn PPP \$ GDP	Correlation
Rank/ value	2	14	80	60	1
Spain					
Name of country					
Indicator	ICT use *	Global R&D companies, avg. exp. top 3, mn \$ US	ICT access	Knowledge diffusion	Correlation
Rank/ value	21	thirteen	23	34	1
Poland					
Name of country					
Indicator	ICT use *	Global R&D companies, avg. exp. top 3, mn \$ US	ICT access	QS university ranking, average score top 3 *	Correlation
Rank/ value	45	37	46	41	1

Source: author calculation based on The Global Innovation Index, 2020.

Correlation analysis of indicators in the field of education and innovation (see Table 4) during 2015 - 2019 determines the gradual establishment of the relationship between education and

innovation and its integration into the educational process, in particular in Iceland (0.7578), Switzerland (0.3305), Sweden (0.3870), the Netherlands (0.3000) and Germany (0.1878).

Table 4. Correlation between education and innovation linkages during 2015-2019

N. n/o	Country	Results
1	Switzerland	0.3305
2	Iceland	0.7578
3	Netherlands	0.3000
4	Germany	0.1878
5	Sweden	0.3870
6	Great Britain	-0.9071
12	France	-0.1225
13	Italy	-0.6106
15	Spain	-0.2028
18	Poland	-0.1433

Source: author calculation based on The Global Innovation Index, 2020.

In 2015-2019, the number of adult students increased significantly, in particular in Sweden (by 4.9), Switzerland (1.5), and Poland (1.3), (see Table 5).

Table 5. Adults' study, % from GDP

	Country	2015	2016	2017	2018	2019	Changes of 2015-2019
1	Switzerland	30.8	31.4	31.2	31.6	32.3	1.5
2	Iceland	28.1	24.7	23.6	21.5	22.2	-5.9
3	Netherlands	18.9	18.8	19.1	19.1	19.5	0.6
4	Germany	8.1	8.5	8.4	8.2	8.2	0.1
5	Sweden	29.4	29.6	30.4	31.4	34.3	4.9
6	Great Britain	15.7	14.4	14.3	14.6	14.8	-0.9
12	France	18.6	18.8	18.7	18.6	18.5	-0.1
13	Italy	7.3	8.3	7.9	8.1	8.1	0.8
15	Spain	9.9	9.4	9.9	10.5	10.6	0.7
18	Poland	3.5	3.7	4.0	5.7	4.8	1.3

Source: Eurostat, 2020.

Correlation analysis of indicators of innovative relationships and adult learning demonstrates the relationship between lifelong learning and innovation in today (see Table 6).

Table 6. Correlation between adults' study and innovation connections during 2015-2019

	Country	Correlation per cent
1	Switzerland	0.6298
2	Iceland	-0.9918
3	Netherlands	0.9550
4	Germany	-0.5054
5	Sweden	0.9810
6	Great Britain	0.9347
12	France	-0.8013
13	Italy	-0.3126
15	Spain	-0.1442
18	Poland	0.2911

Source: author calculation based on Eurostat, 2020 and The Global Innovation Index

At the same time, innovations are actively introduced in improving the pedagogical skills of teachers, thereby increasing the index of innovative education countries (see Table 7). The largest index of the relationship between innovation and change in the collective self-efficacy of teachers in Canada (Quebec) - 40.43, Slovenia - 37.36, Great Britain - 33.43, Hungary - 32.66, Sweden - 30.63. A slightly smaller relationship between innovation and changes in the collective self-efficacy of teachers is observed in Australia - 29.68, Korea - 29.38, Norway - 27.68, Japan - 26.01, Canada (Ontario) - 23.70, USA - 23.63.

Table 7. Education Innovation 30 Index during 2006-2016

	Teachers' peer learning	Formal teacher training	Use of ICT	Innovation and change in teachers' collective self-efficacy	Correlation
Australia	42	14	48	29.68	1.0000
Ontario (CA)	21	20	38	23.70	1.0000
Quebec (CA)	30	35	53	40.43	1.0000
Hungary	41	39	43	32.66	-1.0000
Italy	36	12	44	27.58	1.0000
Japan	30	12	18	26.01	-1.0000
Korea	64	16	18.5	29.38	-1.0000
Lithuania	51	23	29	25.76	-1.0000
Norway	34	30	35	27.68	-1.0000
Slovenia	44	44	24	37.36	1.0000
Sweden	26	25	39	30.63	1.0000
England (UK)	50	17	33	33.43	-1.0000
United States	39	12	52	23.63	1.0000

Source: author calculation based on Vincent-Lancrin, S., et al. (2019).

DISCUSSION

During 2015 - 2019, there is a gradual establishment of the relationship between education and innovation and its integration into the educational process, as evidenced by the correlation analysis of indicators of education and innovation, in Iceland (0.7578), Switzerland (0.3305), Sweden (0.3870), the Netherlands (0.3000) and Germany (0.1878). However, the Pearson correlation coefficient, determined based on The Global Innovation Index, shows the absence of this relationship in the UK (-0.9071), France (-0.1225), Italy (-0.6106), Spain (-0.2028), Poland (-0.1433). Innovative technologies lead to continuous improvement of professional skills and lifelong learning, strengthening the interaction of education and innovation in Sweden (0.9810), Switzerland (0.6298) and Poland (0.2911).

Improving the professional activity of teachers using innovative methods and information and communication technologies can have a positive impact on the development of innovative pedagogical activities in general, and changes in collective pedagogical self-efficacy, as we see in determining the Pearson correlation coefficient in Australia, Canada, Italy, Slovenia, Sweden USA.

CONCLUSION

This study revealed the relationship between education and innovation and its integration into the educational process on the example of ten European countries during 2015-2019. Correlation analysis established this relationship in Iceland (0.7578), Switzerland (0.3305), Sweden, The Netherlands (0.3000) and Germany (0.1878).

The factors that determine the innovative activity of the country are established: availability and access to information and communication technologies, global research and development companies, knowledge creation; financial investments in education, innovative relationships, creation of mobile applications, etc.

The example of Australia, Canada, Italy, Slovenia, Sweden and the USA has shown that improving the professional activity of teachers using innovative methods and information and communication technologies can positively affect the development of innovative pedagogical activities in general and change of collective pedagogical self-efficacy in particular.

Further research may consist in conducting statistical analysis of the number of teachers who improve pedagogical skills through innovative methods, taking into account the

consequences of the pandemic, and study of the latest innovative methods in improving the pedagogical skills of teachers.

REFERENCES

- BRANDISAUSKIENE, A.; CESNAVICIENE J. What Factors Matter for the Sustainable Professional Development of Teachers? *Analysis from Four Countries*. 2021. Available at: <https://doi.org/10.2478/jtes-2020-0022>. Access: Jan.30, 2021.
- DONOVAN, M. Innovation and Induction Corridors: *A Proposal for Integrating Research, Development, and Teacher Professional Preparation*. 2017. Available at: <https://files.eric.ed.gov/fulltext/ED589737.pdf>. Access: Jan.30, 2021.
- EMO, W. Teachers' Motivations for Initiating Innovations. *Journal of Educational Change*. 2015. V.16. №2. P.171-195. Available at: <http://dx.doi.org/10.1007/s10833-015-9243-7>. Access: Jan.30, 2021.
- EUROSTAT, 2020. Available at: <https://ec.europa.eu/eurostat/web/education-and-training/data/main-tables>. Access: Jan.30, 2021.
- FERGUSON, R.. *Pedagogical innovations for technology-enabled learning Senior Lecturer*. The Open University. Milton Keynes. United Kingdom, 2019. Available at: <https://cutt.ly/9bD3l42>. Access: Jan.30, 2021.
- HAMBURG DECLARATION ON ADULT LEARNING. The Fifth International Conference, on Adult Education. Available at: <https://cutt.ly/vbEHRua>. Access: May 06, 2021.
- HASAN, B. Pre-service ELT Teachers' Beliefs and Perceptions on 21st Century Learning and Innovation Skills (4Cs). *Journal of Language and Linguistic Studies*, 2019. № 15(1). P.231-246. Available at: <https://doi.org/10.17263/jlls.547718>. Access: May 06, 2021.
- HRYSCHENKO, A.A. The influence of innovative technologies on the development of teacher's pedagogical skills. *The experience of organization and activation of the educational process based on the introduction of innovative technologies: materials of the scientific-practical conference 5-8 Feb 2008, Kyiv*, p.119-121. Available at: <https://ir.kneu.edu.ua:443/handle/2010/11268>. Access: Apr. 12, 2021.
- INNOVATING PEDAGOGY 2020. Institute of Educational Technology. United Kingdom: The Open University, 2020. Available at: <https://iet.open.ac.uk/file/innovating-pedagogy-2020.pdf>. Access: May 06, 2021.
- IVANCHENKO, YE.; MASLIJ O. The introduction of innovative pedagogical technologies and methods in higher military education is the key to improving its quality. *Security pedagogy*, 2018. №1, p. 1-8. Available at: http://nbuv.gov.ua/UJRN/pedbez_2018_3_1_3. Access: Mar. 10, 2021.
- KARABASOV, YU. S. Formation of an innovative university in the system. "University - Science - Market" *Higher Education*, 2003. №. 6. P. 13-19. Available at: http://arkhiv.nua.kharkov.ua/cgi-bin/irbis64r_15/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=IBIS&P21DBN=IBIS&S21STN=1&S21REF=&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=0&S21LOG=1&S21P03=K=&S21STR=%D0%9D%D0%A2%D0%94. Access: May 01, 2021.
- KOH, E. & LEE, S. Learning Innovations from Research to Practice: Dilemmas in the Field. *Learning: Research and Practice*, 2019. v5. № 1, p. 87-92. Available at: <http://dx.doi.org/10.1080/23735082.2019.1584449>. Access: May 06, 2021.
- KOROTKIKH, M.A. Introduction of innovative pedagogical technologies in the professional activity of military teachers. *Young Scientist*. 2018. № 3 (55). p. 111-115. Available at: http://nbuv.gov.ua/UJRN/molv_2018_3%281%29__28. Access: May 12, 2021.

- KUKULSKA-HULME, A. et al. *Innovating Pedagogy 2020: Open University Innovation Report 8*. Milton Keynes: The Open University, 2020. Available at: <https://iet.open.ac.uk/file/innovating-pedagogy-2020.pdf>. Access: May 06, 2021.
- MYNBAYEVA, A; SADVAKASSOVA, Z. *Pedagogy of the Twenty-First Century: Innovative Teaching Methods*, 2016. Available at: <https://cutt.ly/zbDwzrA>. Access: May 06, 2021.
- REDECKER, C. *Science for policy report European Framework for the Digital Competence of Educators*, 2017. Available at: <https://cutt.ly/PbS9t19>. Access: May 06, 2021.
- SHARPLES M. *Practical pedagogy: 40 new ways to teach and learn*. London, UK: Routledge, 2019. Available at: <http://oro.open.ac.uk/59682/>. Access: May 06, 2021.
- THE GLOBAL INNOVATION INDEX, 2020. Available at: <https://www.globalinnovationindex.org/home>. Access: May 06, 2021.
- TYUNNIKOV, Y. S. Classification of Innovation Objectives Set for Continuing Professional Teacher Development. *European Journal of Contemporary Education*. 2017. V.6. № 1. P.167-181. Available at: <https://files.eric.ed.gov/fulltext/EJ1137863.pdf>. Access: May 06, 2021.
- UNESCO EDUCATION STRATEGY 2020. Available at: <https://cutt.ly/5bSBVhL>. Access: May 06, 2021.
- VINCENT-LANCRIN, S., et al. *Measuring Innovation in Education 2019: What Has Changed in the Classroom?*, *Educational Research and Innovation*, OECD Publishing, Paris, 2019. Available at: <https://doi.org/10.1787/9789264311671-en>. Access: May 06, 2021.
- VITIUK, V.V. Innovative technologies in professional development of teachers in the conditions of education reform. *Pedagogical search*. 2018. № 2 (98), p. 7-10. Available at: http://nbuv.gov.ua/UJRN/pedp_2018_2_4. Access: Apr. 2, 2021.
- VITIUK, V.V. Professional development of teachers in the conditions of innovative educational environment of postgraduate education. *Pedagogical search*. 2016. №1 (89), p. 3-6. Available at: http://nbuv.gov.ua/UJRN/pedp_2016_1_3. Access: Mar. 10, 2021.
- YUEN A. H. *The changing face of educational technology: new media, knowledge practices, and multiliteracies*. In *New Media, Knowledge Practices and Multiliteracies*, 2015. p. 3-9. Available at: <https://doi.org/10.1007/978-981-287-209-8>. Access: May 12, 2021.

Innovative methods in improving the pedagogical skills of teachers

Métodos inovadores para melhorar as habilidades pedagógicas dos professores

Métodos innovadores para mejorar las habilidades pedagógicas de los profesores

Resumo

O objetivo do estudo deste artigo foi analisar quantitativamente a relação entre as introduções de métodos de ensino inovadores e melhorar as habilidades pedagógicas dos professores. A metodologia da pesquisa baseia-se em uma análise comparativa de pesquisas científicas para determinar mudanças no índice de globalização na educação e identificar vínculos de inovação em termos de dez países europeus durante 2015-2019 com base em dados do Global Innovation Index (2020) e eurostat (2020). Como resultado, a relação entre educação e inovação e sua integração ao processo educacional, a exemplo de dez países europeus, durante 2015-2019. Os fatores que determinam a atividade inovadora do país são estabelecidos: disponibilidade e acesso a tecnologias da informação e comunicação, empresas globais de pesquisa e desenvolvimento, criação de conhecimento, investimentos financeiros em educação, relacionamentos inovadores, criação de aplicativos móveis, etc. O valor prático está na possibilidade de implementar os resultados em estratégias nacionais para a introdução de métodos inovadores na melhoria das habilidades pedagógicas dos professores.

Palavras-chave: Inovação. Métodos inovadores. Habilidades pedagógicas. Tecnologias inovadoras. Desenvolvimento inovador da educação.

Abstract

The purpose of the study of this article was to quantitatively analyze the relationship between the introductions of innovative teaching methods and improve the pedagogical skills of teachers. The research methodology is based on a comparative analysis of scientific research to determine changes in the globalization index in education and identify innovation links in terms of ten European countries during 2015-2019 based on data from The Global Innovation Index (2020) and Eurostat (2020). As a result, the relationship between education and innovation and its integration into the educational process on the example of ten European countries during 2015-2019. The factors determining the innovative activity of the country are established: availability and access to information and communication technologies, global research and development companies, knowledge creation, financial investments in education, innovative relationships, creation of mobile applications, etc. The practical value is in the possibility of implementing the results in national strategies for the introduction of innovative methods in improving the pedagogical skills of teachers.

Keywords: Innovation. Innovative methods. Pedagogical skills. Innovative technologies. Innovative development of education.

Resumen

El objetivo del estudio de este artículo era analizar cuantitativamente la relación entre las introducciones de métodos de enseñanza innovadores y mejorar las habilidades pedagógicas de los profesores. La metodología de investigación se basa en un análisis comparativo de la investigación científica para determinar los cambios en el índice de globalización en la educación e identificar vínculos de innovación en términos de diez países europeos durante 2015-2019 sobre la base de datos del Índice Mundial de Innovación (2020) y Eurostat (2020). Como resultado, la relación entre la educación y la innovación y su integración en el proceso educativo con el ejemplo de diez países europeos durante 2015-2019. Se establecen los factores que determinan la actividad innovadora del país: disponibilidad y acceso a tecnologías de la información y la comunicación, empresas globales de investigación y desarrollo, creación de conocimiento, inversiones financieras en educación, relaciones innovadoras, creación de aplicaciones móviles, etc. El valor práctico está en la posibilidad de implementar los resultados en estrategias nacionales para la introducción de métodos innovadores en la mejora de las habilidades pedagógicas del profesorado.

Palabras-clave: Innovación. Métodos innovadores. Habilidades pedagógicas. Tecnologías innovadoras. Desarrollo innovador de la educación.