Salud, Ciencia y Tecnología - Serie de Conferencias. 2025; 4:1479
doi: 10.56294/sctconf20251479

ORIGINAL

Modern Approaches to Educational Management: European Perspectives on Innovation

Enfoques modernos de la gestión educativa: perspectivas europeas sobre la innovación

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Cite as: Mialkovska L, Maiboroda O, Koretska N, Martyniuk Y, Haponchuk O, Korobchuk L. Modern Approaches to Educational Management: European Perspectives on Innovation. Salud, Ciencia y Tecnología - Serie de Conferencias. 2025; 4:1479. https://doi.org/10.56294/sctconf20251479

Enviado: 30-07-2024 **Revisado:** 18-12-2024 **Aceptado:** 24-02-2025 **Publicado:** 25-02-2025

Editor: Prof. Dr. William Castillo-González

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ABSTRACT

Introduction: the steady trend of upgrading approaches in educational management is currently being transformed into optimising the quality of education. This trend is significant against the backdrop of global digitalisation of the educational environment, the need to ensure an adequate level of competitiveness of educational institutions and improve the learning process. The study focuses on analysing the European practice of upgrading education management processes and the study of innovative management concepts for modelling the educational process. The article aims to analyse the concepts of collaboration, adaptability and personalisation in the educational sector against the background of intensive integration of digital technologies, which is typical of the European experience.
Method: while working on the article, a number of general scientific research methods were used, including analysis of literature sources, comparison, systematisation and generalisation, and the method of expert assessments. The study found that for effective modelling of the educational process, it is necessary to provide a stage of detailed planning for integrating digital solutions.
Results: the results of the study of the level of objectivity of expert assessments demonstrate that the proper development of management processes in the educational sphere guarantees the quality of the acquired skills of participants in the educational process. The functionality of the system of motivation and control in the context of the success of both general and personalised educational processes is outlined in the example of insights from Europe.
Conclusions: the imperfection of approaches to digital adaptation of the educational process and integration of online education systems is identified. The article proves that modern managerial innovations in the formation of the educational process are the driving force of adequate social progress.

Keywords: Education; Training; Digital Communications; Change Management; Management Of Educational Institutions; Environmental Culture.

RESUMEN

Introducción: la tendencia constante a actualizar los enfoques de la gestión educativa se está transformando actualmente en una optimización de la calidad de la enseñanza. Esta tendencia es significativa en el contexto de la digitalización global del entorno educativo, la necesidad de garantizar un nivel adecuado de competitividad de las instituciones educativas y la mejora del proceso de aprendizaje. El estudio se centra en el análisis de la práctica europea de mejora de los procesos de gestión de la educación y en el estudio de conceptos de gestión innovadores para modelar el proceso educativo. El artículo pretende analizar los conceptos de colaboración, adaptabilidad y personalización en el sector educativo en un contexto de integración intensiva de las tecnologías digitales, típico de la experiencia europea.
Método: durante la elaboración del artículo se utilizaron métodos generales de investigación científica, como el análisis de fuentes fuentes bibliográficas, la comparación, la sistematización y generalización, y el método de evaluación de expertos. El estudio concluyó que, para modelizar eficazmente el proceso educativo, es necesario prever una fase de planificación detallada para la integración de soluciones digitales.
Resultados: los resultados del estudio del nivel de objetividad de las evaluaciones de expertos demuestran que el desarrollo adecuado de los procesos de gestión en el ámbito educativo garantiza la calidad de las competencias adquiridas por los participantes en el proceso educativo. La funcionalidad del sistema de motivación y control en el contexto del éxito de los procesos educativos tanto generales como personalizados se esboza en el ejemplo de las percepciones procedentes de Europa.
Conclusiones: se identifica la imperfección de los enfoques para la adaptación digital del proceso educativo y la integración de los sistemas de educación en línea. El artículo demuestra que las modernas innovaciones de gestión en la formación del proceso educativo son el motor de un progreso social adecuado.

Palabras clave: Educación; Formación; Comunicación Digital; Gestión Del Cambio; Gestión De Instituciones Educativas; Cultura Ambiental.

INTRODUCTION

The growing influence of information load and innovations in the communication sphere requires expanding the boundaries of integrating online education systems and using fundamentally new approaches to modelling the educational process.[1]

Digital tools like Zoom, Moodle, Google Classroom, Word Pad, Google Meet, and MathCAD can significantly improve learning outcomes. The actualisation of online concepts of educational provision at various levels is accompanied by several related challenges.[2,3] In the post-covid era, when all available digital tools have been integrated into education to preserve its social relevance, the practice of online education is gaining momentum and empowering users, whose number is growing every year (from 2,8 million in 2018 to 5,4 million in 2023[4]). This creates new challenges for management in the educational sector.[5]

A number of modern scholars are interested in innovative educational management issues. In particular, Zhao et al.[6] and Kuhail[7] analyse the processes of transformation of educational management in the context of updating approaches to the formation of a synergistic model of educational and scientific potential management. Scientists believe that such a model should be based on ensuring internal sustainable conditions to optimise the overall system in the required vector. Contemporary scholars Eker & Eker[8] and Veber et al.[9] insist on systematically updating the education management strategy to improve pedagogical practices.

This scientific article aims to analyse the concepts of collaboration, adaptability, and personalisation in the educational sphere against the intensive integration of digital technologies, which is typical of the European experience. It is necessary to fulfil several research objectives, in particular:

1) to identify aspects of the impact of educational digital technologies;
2) to explore adaptive and personalised curricula and collaborative practices to improve the efficiency of the educational process;
3) to identify the best European practices and universal insights.

Literature review

Some researchers[10,11] see the prospect of intensifying practical cooperation between educational institutions, public authorities and the public as a priority area for upgrading the education management system. This experience is typical for European countries. According to the above scientists, the interaction of educational institutions and society is characterised by mutual benefits and allows for solving several education management issues more productively.

According to Adiyono et al.,[12] the tasks of this cooperation include the introduction of practice-oriented

learning at different educational levels, the development of financing and investment in education, and ensuring the principles of academic adaptability of the educational process. According to the authors, this requires improving the management models of an educational institution in the context of the integration strategy into the global educational environment.

The European community actively promotes the development of the digital educational ecosystem. For example, according to the Digital Education Action Plan (2021-2027), the conceptual perspective is the development of digital skills and competences of participants in the educational process.[13] According to researchers,[14,15] effective planning of the educational process in the direction of digital competence and environmental awareness of participants requires proper quality of educational content and integration of innovative approaches to administration.

As Radkevych et al.[16] argued, transforming educational approaches in Europe involves intensive professional development of teachers, mastering digital competences and innovative learning skills. Curricula and projects should be relevant, practical and engaging for students.[17] In this context, Terzi et al.[18] promote project-based learning for developing social communication - teamwork, leadership, and critical thinking. Falcione et al.[19] emphasise the need for appropriate predictive modelling of the educational process.

The study by Gamage et al.[20] highlights the growing role of online MOOC platforms created in several European countries, such as Future Learn in the UK. In addition, Mialkovska et al.[21] and Ramadhani and Khusniati[22] note the need to actively integrate interactive learning materials and information technologies into the educational process to improve the quality of education. Such measures require a thorough analysis of educational institutions' technical and information infrastructure to develop new approaches to managing the learning process. European experience shows that digital technologies are a catalyst for educational transformation. In this context, attention to educational management will ensure modern education's continuous development and effective individualisation at different levels.

METHOD

This article is an original study of the concepts of collaboration, adaptability and personalisation in the education sector against the background of intensive integration of digital technologies in the European community, with the most significant promising areas of practical implementation highlighted. In the course of the study, general scientific methods of analysing literature sources, synthesising and generalising the information obtained, and systematising it, as well as a unique method of expert assessments, were applied. These methods made it possible to identify the priority goals of the modern educational process in the context of European practices and the function of education management. The former include cooperation, personalisation of learning, digitalisation, and adaptation of the educational environment. At the same time, the management functions include organisation, planning, motivation and control.

To obtain the results of an objective assessment of the issues under study, the expert survey method and a two-level assessment were used. This method involved teachers and students, with 15 people in each group. Participants of both groups assessed the level of compliance of the educational process tasks with the defined goals and functions, which allowed for an integral assessment of the defined indicators. The assessment was based on a scale from 0 (minimum score) to 10 (maximum score).

As part of this study, a correlation analysis of the effectiveness of modern management approaches to innovative modelling of the educational process was also carried out using the JASP (Classical Correlation tool). Based on the data obtained, a correlation matrix was compiled.

The next stage of the study was to verify the reliability of the estimates obtained. To this end, an additional analysis was carried out based on the use of the Bayesian coefficient, which combines the generalised indicators of the selected t-criterion, the stability of the Bayesian coefficient in the JASP (Bayesian Paired Samples T-Test tool) software and the results of the inference analysis. The chosen method was used to identify the level of objectivity of the obtained estimates and to determine the degree of their discrepancy.

RESULTS

The educational sector's development is currently accompanied by a number of challenges and risks inherent in intensive digitalisation and the upgrade of management systems. Adapting traditional education to the new conditions of social development requires research into leading strategies for improving education management.

Innovative digital educational tools create new opportunities for personalised learning, transforming the role of teaching staff. Interactive interaction and informal education allow the automation of some of the teacher's functions and provide an instant feedback system. This significantly improves the effectiveness of the management of educational and research processes in education.[23,24]

Based on the studied literature sources, the main goals and managerial functions in the application of innovative approaches to modelling the educational process, which are typical for the European community,

have been identified. The effectiveness of achieving modern management tasks was evaluated using expert assessments. Two groups were formed: a group of 15 university teachers (group 1) and a group of 15 full-time students (group 2).

At the first stage of the analytical study, a Pearson correlation analysis was carried out using the values of assessments of the tasks of modern educational management by teachers (F) and students (C) (table 1).

Table 1. Correlation matrix of fulfilling the tasks of modern management in modelling the educational process

Objective	Management functions							
	Planning	**Coef. Pearson**	**Organisation**	**Coef. Pearson**	**Motivation.**	**Coef. Pearson**	**Control**	**Coef. Pearson**
Digital upgrade	Strategy for integrating digital technologies into the educational process (F1/C1)	0,764 < 0,001	Ensuring access to digital platforms for participants in the educational process (F5/C2)	-0,052 0,853	Incentive for the integration of digital methods (F9/C3)	0,290 0,295	The success rate of digital solutions integration (F13/C4)	-0,310 0,261
Interaction	Plan of cooperation of participants in the educational process (F2/C5)	-0,258 0,353	Formation of an educational space for cooperation (F6/C6)	0,062 0,827	Incentives for collaborative learning methods (F10/ C7)	0,411 0,128	Monitoring success group projects (F14/C8)	0,700 0,004
Personalisation	Individual study plans and programmes (F3/ C9)	-0,016 0,954	Access to resources for personalised learning (F7/C10)	0,532 0,041	Incentives for an individual approach (F11/ C11)	0,172 0,540	Monitoring student progress according to an individual plan (F15/C12)	0,654 0,008
Adaptation	Strategy for the integration of online platforms (F4/C13)	0,299 0,278	Distance learning (F8/C14)	-0,060 0,833	Incentives for the practice of online platforms (F12/C15)	-0,189 0,500	Student success rate (F16/C16)	-0,415 0,124

According to the results of the correlation analysis, there is a high level of correlation between expert opinions on the following indicators:

- «Stimulation to implement collaborative learning methods» (r = 0,41 at p = 0,128);
- «Organisation of access to resources for individual learning for students and teachers» (r = 0,53 at p = 0,041);
- «Controlling the level of students' academic performance in the online format» (r = -0,42 at p = 0,124). According to these indicators, the results demonstrate a high efficiency of management processes, which is representative of the current state of educational management development. This represents the coherence of educational goals and certain management functions' efficiency levels.

At the same time, it is worth noting that the indicators «Strategy for integrating digital technologies into the educational process» (r = 0,76 at p = 0,001), «Monitoring student progress according to an individual plan» (r = 0,65 at p = 0,008), «Monitoring the success of group projects» (r = 0,7 at p = 0,004) also demonstrate a high degree of correlation to some extent. However, p-values > 0,05 indicate that the correlations obtained are insufficient to establish a stable relationship between expert opinions on these indicators (Appendix A).

The results of the analysis show that a low level of correlation is typical for the assessment:

- «Formation of educational space for cooperation» (r = 0,06 at p = 0,827);
- «Individual curricula and programmes» (r = 0,02 at p = 0,954);
- «Providing access to digital platforms for participants in the educational process» (r = 0,05 at p = 0,853);
- «Distance learning organisations» (r = 0,06 at p = 0,833).

Given the low levels of correlation in these aspects, the goals of modern educational management are only partially achieved. A significant difference in the initial values of expert assessments confirms this.

https://doi.org/10.56294/sctconf20251479

A moderate degree of correlation is typical for:

- «Plan of cooperation of participants in the educational process» (r = 0,26 at p = 0,353);
- «Online platform integration strategy» (r = 0,29 at p = 0,278);
- «Incentive to integrate digital methods» (r = 0,29 at p = 0,295);
- «Success rate of digital solutions integration» (r = 0,31 at p = 0,261).

This represents an unclear relationship between expert assessments of these indicators. The educational management is partially effective in implementing these tasks at this stage.

The expert survey resulted in a wide range of assessments. This served as an incentive to conduct additional analysis of the functionality of modern educational management. For this purpose, a Bayesian paired t-test[25,26] was used in the JASP software, which allows the assessment of the differentiation between the assessments of two groups of experts.[27,28] The results of the paired Bayesian t-test with the established criterion are presented in table 2.

Table 2. Effectiveness of the evaluation of the educational process management system (using paired Bayesian t-test)

Bayesian Paired Samples T-Test			
Measure 1	**Measure 2**	**BF_{-0}**	**error %**
C1	F1	0,211	~ 0,013
C5	F2	0,494	~ $7{,}814\times10^{-6}$
C9	F3	0,067	~ 0,002
C13	F4	0,343	~ $5{,}517\times10^{-6}$
C2	F5	0,108	~ $7{,}504\times10^{-4}$
C6	F6	0,187	~ 0,003
C10	F7	0,052	~ 0,007
C14	F8	0,196	~ 0,006
C3	F9	4,190	~ $5{,}642\times10^{-5}$
C7	F10	2,385	~ $9{,}261\times10^{-5}$
C11	F11	0,079	~ 0,081
C15	F12	2,154	~ $6{,}894\times10^{-5}$
C4	F13	0,320	~ $7{,}004\times10^{-6}$
C8	F14	8,834	~ $2{,}695\times10^{-4}$
C12	F15	0,056	~ 0,137
C16	F16	0,388	~ $2{,}138\times10^{-6}$

As the results of additional analysis show, the assessments of the two groups of experts - teachers and students - are quite consistent in the following indicators:

- «Stimulus for the integration of digital methods» (BF_{-0} = 4,19, with an error of ~$5{,}642\times10^{-5}$);
- «Plan of cooperation of participants in the educational process» (BF_{-0} = 0,494, with an error of ~ $7{,}814\times10^{-6}$);
- «Strategy for integrating online platforms» (BF_{-0} = 0,343, with an error of ~$5{,}517\times10^{-6}$);
- «Level of online student success» (BF_{-0} = 0,388, with an error of ~ $2{,}138\times10^{-6}$).
- The obtained indicators are objective, which indicates a high level of efficiency in the implementation of tasks in the process of education management from the point of view of both groups of experts
- At the same time, specific indicators showed a significant percentage of discrepancies between the expert groups:
  - «Planning of individual curricula and programmes» (BF_{-0} = 0,067, with an error of ~ 0,002);
  - « Access to resources for personal learning « (BF_{-0} = 0,052, with an error of ~ 0,007);
  - «Control of students' progress according to an individual plan» (BF_{-0} = 0,056, with an error of ~ 0,137).

The obtained results require a detailed analysis of the indicators characterised by maximum discrepancies between the estimates (figures 1, 2, 3). The statistical software JASP performed a detailed analysis using inference diagrams.

The output graph confirms the null hypothesis for the indicator «Planning of individual curricula and programmes» (BF_{-0} = 0,067, with an error of ~ 0,002). Thus, it can be argued that there is no significant difference between the expert groups' assessments in this context.

https://doi.org/10.56294/sctconf20251479

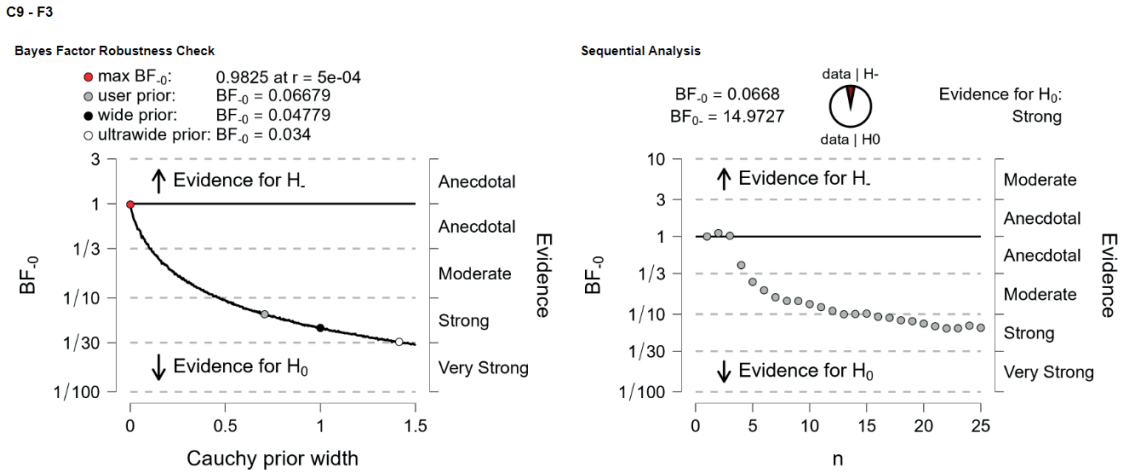

Figure 1. Inferential Plots for the Indicator «Planning of individualised learning plans and programmes»

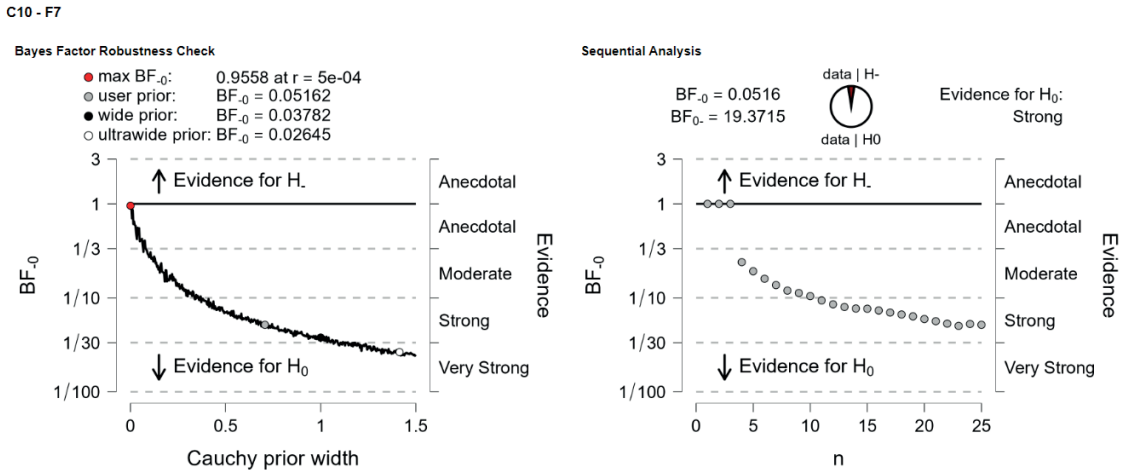

Figure 2. Inferential Plots for the Indicator «Access to resources for personal learning»

In the case of the indicator «Access to resources for personal learning» (BF_{-0} = 0,052, with an error of ~ 0,007), as evidenced by the inference diagram results, the organisation of access to resources for individual learning for participants in the educational process also convincingly confirms the null hypothesis. That is, there is no significant difference between the scores of the two groups.

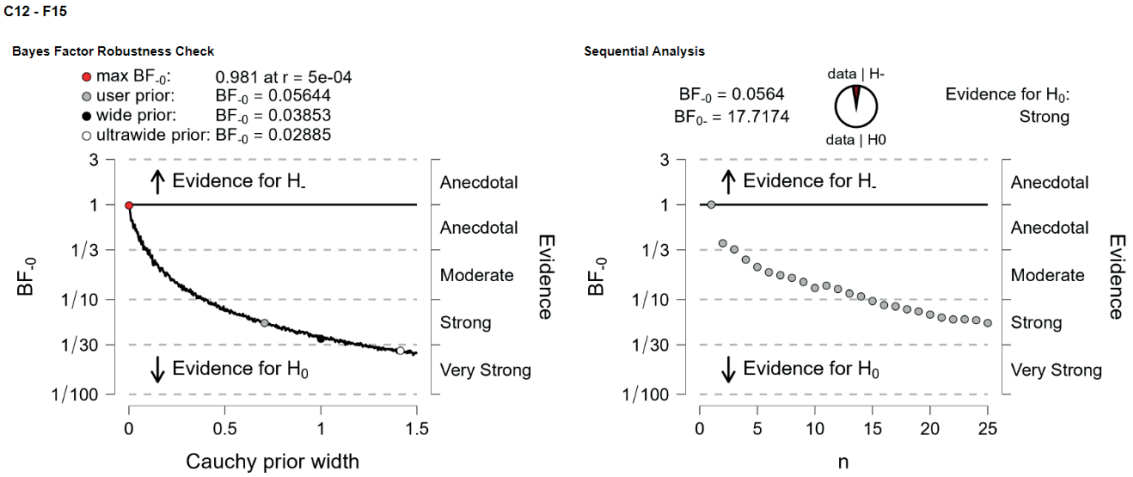

Figure 3. Inferential Plots for the Indicator «Monitoring of students' progress according to an individual plan»

https://doi.org/10.56294/sctconf20251479

In the case of the indicator «Control of students' progress according to an individual plan» (BF_{-0} = 0,056, with an error of ~ 0,137), the output graphs for the third time demonstrate strong support for the null hypothesis. Thus, the differentiation of the two expert groups' opinions is not statistically significant.

Given the above, expert assessments of the management of educational processes can be considered objective (table 3).

Table 3. Checking the Stability of the Bayes Factor

Descriptives

№	N	Mean	SD	SE	Coefficient of variation	95% Credible Interval	
						Lower	Upper
C1	15	5,920	2,100	0,420	0,355	5,053	6,787
F1	15	5,920	2,308	0,462	0,390	4,967	6,873
C5	15	5,080	1,824	0,365	0,359	4,327	5,833
F2	15	5,640	2,515	0,503	0,446	4,602	6,678
C9	15	7,120	2,774	0,555	0,390	5,975	8,265
F3	15	5,880	2,789	0,558	0,474	4,729	7,031
C13	15	5,640	1,977	0,395	0,350	4,824	6,456
F4	15	5,920	2,644	0,529	0,447	4,828	7,012
C2	15	6,000	1,803	0,361	0,300	5,256	6,744
F5	15	5,480	2,275	0,455	0,415	4,541	6,419
C6	15	5,160	1,886	0,377	0,365	4,382	5,938
F6	15	5,080	1,891	0,378	0,372	4,299	5,861
C10	15	6,880	2,635	0,527	0,383	5,792	7,968
F7	15	4,960	2,746	0,549	0,554	3,827	6,093
C14	15	5,800	2,021	0,404	0,348	4,966	6,634
F8	15	5,760	1,690	0,338	0,293	5,062	6,458
C3	15	5,800	2,179	0,436	0,376	4,900	6,700
F9	15	6,760	2,488	0,498	0,368	5,733	7,787
C7	15	5,160	2,192	0,438	0,425	4,255	6,065
F10	15	6,120	2,759	0,552	0,451	4,981	7,259
C11	15	6,880	2,315	0,463	0,337	5,924	7,836
F11	15	5,960	2,894	0,579	0,486	4,766	7,154
C15	15	5,960	2,031	0,406	0,341	5,122	6,798
F12	15	6,880	2,587	0,517	0,376	5,812	7,948
C4	15	5,680	1,952	0,390	0,344	4,874	6,486
F13	15	5,920	2,482	0,496	0,419	4,896	6,944
C8	15	4,840	2,511	0,502	0,519	3,803	5,877
F14	15	6,120	2,386	0,477	0,390	5,135	7,105
C12	15	7,160	2,544	0,509	0,355	6,110	8,210
F15	15	5,560	2,859	0,572	0,514	4,380	6,740
C16	15	5,640	2,059	0,412	0,365	4,790	6,490
F16	15	6,040	2,622	0,524	0,434	4,958	7,122

Thus, verifying the results shows sufficient stability of the average values for the defined tasks and their representativeness in the management context in modelling the modern educational process.

It is evident that digitalisation technologies, despite the challenges involved, form several practical tools for practice-oriented learning that allow optimising the processes of practical learning and generalisation, spatial awareness and visualised perception of complex definitions and concepts. They also contribute to forming specific professional skills, creating imaginary spaces for unsolved tasks, and developing creativity and the cognitive sphere by recreating real practical situations.

https://doi.org/10.56294/sctconf20251479

At the same time, due to mobile technologies and the large-scale digitalisation of society, education is transforming from the concept of «lecture» to the concept of «dialogue» between the student and the teacher, and the educational process itself is transforming from the acquisition of knowledge to its production. Innovation-based modelling of the educational environment has signs of predictive success, allowing the design and modelling of unlimited educational environments and interaction scenarios.

CONCLUSION

The study aimed to analyse the concepts of collaboration, adaptability and personalisation in the educational sector against the background of intensive integration of digital technologies, which is typical of the European experience. According to the analysis of the effectiveness of modern management tasks using innovative approaches to modelling the educational process, which was implemented in this study, the success of integrating digital technologies into the educational process depends on careful planning. At the same time, the stages of organisation and control have a deterministic functionality

According to the study results, obtained using expert assessments, the strategy of cooperation in learning requires proper motivation and effective control for its development. At the same time, the success of a management strategy for individualising learning is determined by the level of organisation of access to resources and proper planning. In addition, adaptation to online learning requires optimisation of the concept of strategic planning and organisation, as existing management approaches are seen as ineffective.

The involvement of cognitive skills in using digital technologies in education allows for the successful development of practice-oriented educational programmes. In general, the emphasis in the modern educational management system should be on strategic planning and motivation. At the same time, monitoring and performance control is crucial for successfully modelling the educational process. Also, special attention should be paid to the relationship between scientific motivation, innovative technologies and students' academic achievements.

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FINANCING

The authors did not receive financing for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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APPENDIX A

Pearson's Correlations																	
Variable		**F1**	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**	**F8**	**F9**	**F10**	**F11**	**F12**	**F13**	**F14**	**F15**	**F16**
C1	Pearson's r	0,764	0,039	-0,018	-0,368	-0,272	-0,047	0,089	-0,197	0,172	-0,368	-0,198	-0,143	0,034	-0,093	0,477	-0,183
	p-value	< ,001	0,891	0,949	0,177	0,326	0,869	0,752	0,483	0,539	0,177	0,479	0,610	0,904	0,741	0,072	0,513
C2	Pearson's r	0,291	0,057	0,322	0,037	-0,052	-0,226	0,050	-0,370	-0,284	0,090	-0,329	-0,247	-0,015	-0,231	-0,184	0,307
	p-value	0,293	0,840	0,242	0,896	0,853	0,419	0,860	0,175	0,304	0,749	0,231	0,376	0,957	0,408	0,510	0,265
C3	Pearson's r	0,170	0,025	0,083	-0,105	-0,403	-0,157	0,291	-0,383	0,290	0,260	-0,095	-0,008	0,090	0,051	-0,108	0,177
	p-value	0,544	0,930	0,769	0,711	0,136	0,575	0,292	0,159	0,295	0,349	0,735	0,976	0,750	0,857	0,701	0,529
C4	Pearson's r	-0,068	-0,333	-0,291	-0,300	-0,297	0,000	0,411	0,334	0,314	0,193	0,216	0,601	-0,310	-0,058	-0,202	-0,028
	p-value	0,809	0,225	0,293	0,277	0,283	1,000	0,128	0,224	0,255	0,490	0,440	0,018	0,261	0,839	0,471	0,922
C5	Pearson's r	0,166	-0,258	0,271	-0,096	0,080	-0,264	0,346	-0,435	-0,010	-0,153	0,028	-0,536	-0,149	0,441	-0,155	0,245
	p-value	0,554	0,353	0,328	0,734	0,776	0,341	0,206	0,105	0,973	0,586	0,921	0,039	0,596	0,099	0,582	0,379
C6	Pearson's r	0,577	-0,262	-0,223	-0,399	-0,125	0,062	-0,227	0,254	0,117	0,353	-0,109	0,509	-0,292	-0,365	0,229	-0,096
	p-value	0,024	0,346	0,424	0,140	0,657	0,827	0,415	0,362	0,679	0,197	0,699	0,053	0,291	0,181	0,412	0,733
C7	Pearson's r	0,450	-0,127	0,228	-0,167	-0,531	-0,020	0,192	0,192	0,239	0,411	-0,271	-0,110	-0,125	-0,085	-0,085	0,419
	p-value	0,093	0,653	0,413	0,552	0,042	0,945	0,493	0,493	0,391	0,128	0,329	0,697	0,657	0,762	0,762	0,120
C8	Pearson's r	-0,392	-0,069	0,231	-0,059	-0,116	0,065	0,237	-0,349	0,348	0,299	0,069	-0,347	0,086	0,700	-0,067	0,202
	p-value	0,149	0,806	0,407	0,833	0,680	0,817	0,395	0,202	0,204	0,279	0,806	0,205	0,760	0,004	0,812	0,471
C9	Pearson's r	0,213	-0,062	-0,016	-0,176	-0,192	0,378	-0,204	0,008	0,174	-0,346	0,089	0,438	-0,275	-0,066	0,654	-0,791
	p-value	0,446	0,826	0,954	0,530	0,494	0,165	0,467	0,977	0,535	0,207	0,752	0,103	0,321	0,816	0,008	< ,001
C10	Pearson's r	0,129	-0,202	-0,219	-0,283	0,098	-0,103	0,532	0,127	-0,080	-0,124	0,145	0,312	-0,149	-0,006	-0,038	-0,074
	p-value	0,646	0,471	0,434	0,306	0,727	0,716	0,041	0,651	0,777	0,660	0,606	0,258	0,596	0,983	0,894	0,793
C11	Pearson's r	0,570	-0,108	0,050	-0,431	-0,148	-0,259	0,145	-0,025	0,193	-0,346	0,172	0,579	-0,212	-0,276	0,468	-0,533
	p-value	0,026	0,703	0,859	0,109	0,599	0,350	0,606	0,928	0,491	0,207	0,540	0,024	0,448	0,319	0,079	0,041
C12	Pearson's r	-0,384	-0,243	-0,223	-0,224	0,083	0,123	-0,040	0,314	0,145	0,224	0,349	0,605	-0,217	-0,043	-0,093	-0,117
	p-value	0,157	0,383	0,424	0,422	0,767	0,661	0,887	0,254	0,607	0,423	0,202	0,017	0,437	0,879	0,742	0,678
C13	Pearson's r	0,161	0,122	0,345	0,299	-0,087	-0,258	-0,195	-0,034	-0,183	0,166	-0,091	-0,246	0,083	-0,354	-0,331	0,433
	p-value	0,566	0,666	0,209	0,278	0,757	0,353	0,486	0,905	0,513	0,554	0,746	0,378	0,768	0,195	0,229	0,107
C14	Pearson's r	0,053	-0,511	0,217	-0,248	-0,370	0,051	0,116	-0,060	0,156	-0,131	0,621	0,487	-0,638	-0,208	-0,034	-0,084
	p-value	0,852	0,052	0,438	0,373	0,175	0,857	0,680	0,833	0,579	0,641	0,014	0,065	0,011	0,457	0,905	0,765

https://doi.org/10.56294/sctconf20251479

C15	Pearson's r	0,287	-0,079	0,186	-0,012	0,185	-0,160	-0,122	-0,199	-0,344	-0,141	-0,198	-0,189	-0,155	-0,200	-0,057	0,089
	p-value	0,300	0,780	0,506	0,966	0,509	0,568	0,665	0,478	0,209	0,615	0,479	0,500	0,580	0,475	0,839	0,754
C16	Pearson's r	-0,129	-0,219	-0,430	-0,052	0,609	-0,022	-0,089	-0,095	-0,113	-0,289	0,256	0,053	-0,132	0,393	0,225	-0,415
	p-value	0,648	0,434	0,110	0,853	0,016	0,938	0,752	0,738	0,689	0,296	0,357	0,851	0,640	0,147	0,420	0,124

https://doi.org/10.56294/sctconf20251479