https://doi.org/10.34142/2709-7986.2026.31.1.09

MODIFICATION DYNAMICS OF INSTITUTIONAL CHANGES IN EDUCATION: AXIOLOGICAL ANALYSIS OF INFORMATION AND COMMUNICATION TECHNOLOGIES

МОДИФІКАЦІЙНА ДИНАМІКА ІНСТИТУЦІЙНИХ ЗМІН В ОСВІТІ: АКСІОЛОГІЧНИЙ АНАЛІЗ ІНФОРМАЦІЙНО-КОМУНІКАЦІЙНИХ ТЕХНОЛОГІЙ

Received: February 22, 2026 **Accepted:** March 23, 2026 **Published:** April 15, 2026

Vasyl FAZAN[1], Dmytro DANYLEVSKYI[2], Artem HRYBENIUK[3], & Denys DMYTRENKO[4]

[1] *Doctor of Science in Pedagogy, Doctor of Science in Theology, Professor, Department of General Pedagogy and Andragogy, Vice-Rector, Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.*

✉ **E-Mail:** *Fazanvv@gmail.com*

https://orcid.org/0000-0002-9823-3704

[2] *Ph.D. Student, Department of General Pedagogy and Andragogy, Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.*

✉ **E-Mail:** *dmytro@danylevskyi.com*

https://orcid.org/0009-0006-4287-0452

[3] *Ph.D. Student, Department of Preschool Education, Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.*

✉ **E-Mail:** *artem.hrybeniuk@gmail.com*

https://orcid.org/0009-0006-7025-194X

❛ *Ph.D. Student, Department of Preschool Education, Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.*

✉ **E-Mail:** *twix2sweet@gmail.com*

https://orcid.org/0009-0002-0041-2323

How to Cite this Article (APA Style):
Fazan, V., Danylevskyi, D., Hrybeniuk, A., & Dmytrenko, D. (2026). Modification dynamics of institutional changes in education: Axiological analysis of information and communication technologies. *Educational Challenges*, *31*(1), 121–137. https://doi.org/10.34142/2709-7986.2026.31.1.09

ABSTRACT

Purpose. *The purpose of the article is to investigate the modification dynamics of institutional changes in education and to conduct an axiological analysis of the role of information and communication technologies in this process.*

Methodology. *In order to study the scientific literature on the issue, we used a number of methods: analysis, synthesis, comparison, generalisation and systematisation. Content analysis of scientific publications in recent years has enabled us to identify current trends in global and national digitalisation and outline the problem area of the study. The empirical part of the study was implemented through a survey aimed at identifying the characteristics of institutional transformations caused by ICT integration and analysing their axiological impact on participants in the educational process.*

Results. *The empirical data obtained during the study indicate that respondents have a predominantly positive perception of the functional role of ICT in modern educational processes. Thus, 42% of respondents believe that digital technologies contribute to strengthening the humanistic potential of pedagogical interaction. About 30% of respondents emphasise the emergence of new forms of communication and interaction, which indicates a transformation of the traditional structure of educational communication. At the same time, 12% of participants note a decrease in the level of*

Мета статті *– дослідити модифікаційну динаміку інституційних змін в освіті та здійснити аксіологічний аналіз ролі інформаційно-комунікаційних технологій (ІКТ) у цьому процесі.*

Методологія. *З метою опрацювання наукової літератури з означеної проблеми нами використано низку методів: аналіз, синтез, порівняння, узагальнення та систематизація. Контент-аналіз наукових публікацій за останні роки дозволив виокремити актуальні тенденції глобальної та національної цифровізації й окреслити проблемне поле дослідження. Емпіричну частину дослідження було реалізовано шляхом проведення опитування, метою якого стало виявлення особливостей інституційних трансформацій, зумовлених інтеграцією ІКТ, та аналіз їхнього аксіологічного впливу на учасників освітнього процесу.*

Результати. *Емпіричні дані, отримані в ході дослідження, засвідчують, що респонденти переважно позитивно оцінюють функціональну роль інформаційно-комунікаційних технологій у сучасних освітніх процесах. Зокрема, 42% опитаних вважають, що цифрові технології сприяють посиленню гуманістичного потенціалу педагогічної взаємодії. Близько 30% респондентів наголошують на появі нових форм комунікації та взаємодії, що свідчить про трансформацію традиційної структури освітньої комунікації. Водночас 12% учасників відзначають зниження рівня особистісного контакту, що вказує на*

personal contact, which indicates the presence of certain barriers in the humanitarian dimension of digitalisation, associated with the risk of reducing interpersonal relationships and the emotional component of pedagogical interaction.

Conclusions. *Analysis of the materials we have studied allows us to conclude that digital transformation initiates modifications in the institutional structure of education, covering both functional and axiological components. Informational and communicative technologies act as a catalyst for change, ensuring: the expansion of the information capabilities of the educational environment; the formation of new communication models; the increase of cognitive autonomy and digital competence of participants in the educational process; the innovative renewal of professional activity; the reorientation of the value priorities of education in accordance with the requirements of digital culture.*

Keywords: *digital competence, digital culture, digital technologies, digital transformation of education, digitalisation, digitalisation of educational institutions, innovative activity.*

наявність певних бар'єрів у гуманітарному вимірі цифровізації, пов'язаних із ризиком послаблення міжособистісних зв'язків та емоційного компоненту педагогічної взаємодії.

Висновки. *Аналіз опрацьованих матеріалів дозволяє констатувати, що цифрова трансформація ініціює модифікаційні зрушення в інституційній структурі освіти, які охоплюють як функціональні, так і аксіологічні компоненти. Інформаційно-комунікаційні технології виконують роль каталізатора змін, забезпечуючи: розширення інформаційних можливостей освітнього середовища; формування нових комунікаційних моделей; підвищення когнітивної автономії та цифрової компетентності учасників освітнього процесу; інноваційне оновлення професійної діяльності; переорієнтацію ціннісних пріоритетів освіти відповідно до вимог цифрової культури.*

Ключові слова: *цифрова компетентність, цифрова культура, цифрові технології, цифрова трансформація освіти, цифровізація, цифровізація закладів освіти, інноваційна діяльність.*

INTRODUCTION

The current realities of the development of the education system are characterised by intensive institutional transformations caused by global processes of digitalisation, changes in socio-cultural orientations, and axiological shifts in the system of knowledge values. Education is gradually ceasing to be a traditional structure and is acquiring the characteristics of an open, innovation-oriented system. In this context, the dynamic nature of institutional changes in education manifests itself as a complex process of rethinking the role of educational institutions, their functions, value orientations, and mechanisms of interaction with the digital society.

Contemporary research shows that the integration of information and communication technologies (ICT) not only modifies the organisational forms of educational activity, but also determines new value orientations for the development of education, forming innovative models of pedagogical interaction and knowledge management. In global scientific discourse, the issue of digital transformation is mainly considered through the prism of technological modernisation and institutional adaptation of educational systems (Fernández et al., 2023). Some works focus on the impact of digitalisation on the quality of education and innovative processes in higher education institutions (Paños-Castro et al., 2024), while others emphasise the need to develop digital ethics and a new axiological environment (Zakryzhevska, 2024).

In recent years, studies have appeared that present an analysis of structural transformations in universities in the context of changes in their information architecture (Bobro, 2025), as well as works devoted to the challenges of digitalisation and the renovation of educational practices (Fazan et al., 2025). Research approaches are

increasingly focused on interpreting digitalisation as an element of innovative culture that ensures the evolutionary development of educational institutions.

Scholars also pay considerable attention to the analysis of models of digital transformation of the education, the strengths and weaknesses of modern digital structures (Vozniuk, 2025), and the prospects for their development (Kanevska et al., 2023). Scientific sources outline a trend towards the growing influence of ICT on the formation of new models of professional training, particularly in the field of innovative educational technologies and artificial intelligence (Nalyvaiko, 2023), and it is also noted that digitalisation contributes to the emergence of new formats of learning and institutional management (Vervoort et al., 2024).

The generalisation of processed materials gives grounds to conclude that the current stage of education development is characterised by the dynamic modification of institutional changes, where ICT plays the role of a catalyst for innovative processes. At the same time, the axiological dimension of digital transformation, which covers the humanistic, cognitive and cultural aspects of human interaction with digital technologies, remains insufficiently researched. That is why there is a need for a comprehensive scientific analysis of the functional role of ICT from the perspective of their impact on the value structure of education, the innovative behaviour of participants in the educational process and the formation of modern institutional models.

The relevance of the research is determined by the growing dependence of educational institutions on digital solutions, the need to understand the axiological consequences of technological modernisation, and the need to form a coherent conceptual framework for digital institutional dynamics. In modern conditions, ICTs are not only a means of optimising the educational process, but also an effective factor in innovative development, which determines the importance of a systematic analysis of their role in the transformation of the educational environment.

The **purpose** of the article is to investigate the modification dynamics of institutional changes in education and to conduct an axiological analysis of the role of information and communication technologies in this process.

METHODOLOGY

In order to study the scientific literature on the issue, we used a number of methods: analysis, synthesis, comparison, generalisation and systematisation. Their application ensured the processing of the latest scientific sources, the identification of key concepts of digital transformation, the clarification of the categorical and conceptual apparatus, and the reconstruction of conceptual models of ICT functioning in the structure of educational institutions. Content analysis of scientific publications in recent years has enabled us to identify current trends in global and national digitalisation and outline the problem area of the study.

The empirical part of the study was implemented through a survey aimed at identifying the characteristics of institutional transformations caused by ICT integration and analysing their axiological impact on participants in the educational process. Fifty teachers and higher education students from the V. G. Korolenko Poltava National Pedagogical University were involved in the survey, which ensured the relevance of the sample and the possibility of representative reproduction of the characteristics of the local educational environment.

The questionnaire contained eight content blocks aimed at researching: the level of digital transformation of the educational institution; institutional factors of digitalisation; the effectiveness of ICT uses formats; the impact of digital technologies on the quality of education; the transformation of value orientations; the humanistic content of pedagogical interaction; the level of innovative activity; the role of ICT in shaping an innovative culture. The survey method allowed us to obtain quantitative and qualitative data, which were analysed in detail. The combination of methods used ensured a comprehensive, interdisciplinary and valid nature of the study, which meets the requirements of modern scientific practice.

The empirical data we obtained during the study indicate that respondents have a predominantly positive perception of the functional role of ICT in modern educational processes. This way, 42% of respondents believe that digital technologies contribute to strengthening the humanistic potential of pedagogical interaction. About 30% of respondents emphasise the emergence of new forms of communication and interaction, which indicates a transformation of the traditional structure of educational communication. At the same time, 12% of participants note that the level of personal contact is decreasing which indicates the presence of certain barriers in the humanitarian dimension of digitalisation, associated with the risk of reducing interpersonal relationships and the emotional component of pedagogical interaction.

RESULTS

The concept of modification dynamics reflects not only evolutionary changes in the structure of educational institutions, but rather a systemic restructuring of the educational paradigm, in which the functional role of informational and communicative technologies becomes a determining factor in innovative development. Transformations in education are influenced by technological progress, which leads to new approaches to the organisation of the educational environment, teaching methodology, management of educational processes, and the formation of competencies required in the digital space (Kanevska et al., 2023).

It should be noted that the institutional dynamics of educational systems are determined, first and foremost, by the fact that digital technologies are not only a tool for modernisation, but also a catalyst for re-evaluating the axiological foundations of education. There is a shift towards a competence-based paradigm, where the main value is not the amount of knowledge acquired, but the ability to independently search for, critically comprehend and creatively interpret information (Kremen et al., 2022). Education is moving from a model of knowledge transfer to a model of co-creation of meaning, where ICTs are shaping new ways of communication, social interaction and cognitive activity.

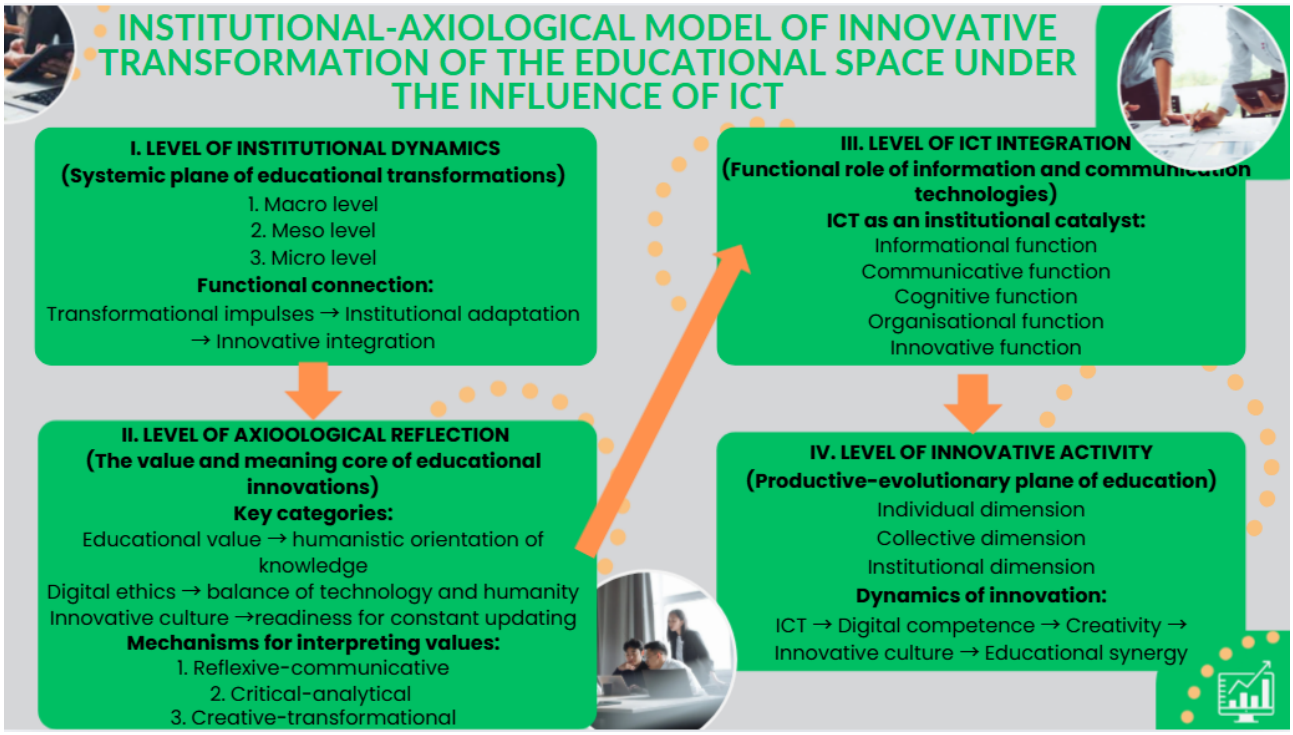
The axiological dimension of digital transformations lies in the fact that technologies not only change the form and content of the educational process, but also influence the value system of education as a social institution. The traditional model was dominated by the values of stability, discipline, authority and academic hierarchy. In the digital age, however, the values of openness, mobility, inclusiveness, partnership, self-development and innovation come to the fore. Thus, ICTs emerge as a factor of axiological renewal.

In the process of institutional change, mutual influence can be traced at three levels: technological, sociocultural, and value-semantic. At the technological level, this involves the introduction of digital platforms, learning management systems, distance learning courses, artificial intelligence in educational analytics, and the use of VR/AR technologies

for modelling educational situations. At the sociocultural level, it involves the transformation of the role of the teacher from a knowledge carrier to a facilitator of the educational process, and of the student from a passive consumer of information to an active participant in educational interaction (Voznyuk, 2025). At the value level, it involves the formation of new principles of ethical responsibility for the use of digital technologies, the preservation of academic integrity, and the development of digital culture. In the course of our research, we have developed an institutional-axiological model of innovative transformation of the educational space under the influence of ICT, which is structured on four levels (Figure 1).

Figure 1

Institutional-axiological model of innovative transformation of the educational space under the influence of ICT.



Source: developed by the authors

The institutional-axiological model of innovative transformation of the educational space under the influence of ICT considers the educational system as a multi-level dynamic structure that constantly adapts to the challenges of the digital age. At the level of institutional dynamics, which is the systemic plane of educational transformations, it is appropriate to identify three interrelated levels: macro, meso and micro.

The macro level reflects global and national trends in education development, which set the strategic direction for transformations. At this level, state education policy, digital education development strategies, concepts of digital competence, and national qualification frameworks are shaped. The latter define the goals, standards and benchmarks for innovative development.

The meso level covers the activities of educational institutions – universities, colleges, sectoral and regional educational structures. It is at this level that institutional strategies for digital development, the development of innovative educational programmes, and the introduction of digital platforms, services, and technologies for managing the educational process are formed. Universities are centres of innovative culture where new models of learning are formed (Buzhina et al., 2023).

Direct interaction between participants in the educational process in the digital environment of an educational institution is implemented at the micro level. It is characterised by the implementation of specific digital practices by teachers and students, the formation of a culture of using ICT in teaching, communication and research activities. This level is associated with the development of digital pedagogy, media literacy, digital ethics and critical thinking skills.

The functional link between levels reflects the dynamic logic of change: transformational impulses arising at the macro level (government initiatives, international standards, technological innovations) trigger a process of institutional adaptation at the meso level: educational institutions transform their structures, policies and practical implementation in line with new requirements (Bobro, 2025). The level of axiological reflection in our proposed model is the value-semantic basis of all educational innovations. It is at this level that the humanistic basis of digital transformations is formed, the essence of education in a technological society is rethought, and the new guidelines for educational development are defined.

The key concept is educational value, which sets the humanistic orientation of knowledge. Education is seen not only as a process of transferring information or developing competencies, but as a space for spiritual growth, self-realisation and the affirmation of universal human values. In this context, knowledge acquires axiological content: it is aimed at developing the individual, forming their responsibility, empathy and social thinking.

Another fundamental category is digital ethics, which ensures a balance between technology and humanity. On the one hand, digital technologies open up new opportunities for education – interactivity, accessibility, individualisation of learning; on the other hand, they create risks of depersonalisation, loss of meaning in interaction, and information overload (Vervoort et al., 2024; Zakryzhevska & Ovod, 2024).

The third value orientation is an innovative culture that expresses the educational community's readiness for continuous renewal, creative thinking, and openness to change. This is not only the ability to implement new technologies, but also the ability to critically assess their impact and integrate innovations taking into account pedagogical expediency and value content (Danylevskyi, 2024). Three interrelated mechanisms of value interpretation operate to form the axiological level of innovative thinking: reflective-communicative, critical-analytical, and creative-transformative.

The reflexive-communicative mechanism ensures dialogue between cultures and creates space for mutual understanding between participants in the educational process. It involves the development of communicative competence, tolerance, and respect for opponents. It is through dialogue that educational autonomy is formed – the ability of an individual to independently determine their own value orientations in the process of cognition (Shenkoya & Kim, 2023).

The critical-analytical mechanism associated with rethinking value priorities under the influence of ICT deserves special attention. Its core lies in developing the ability to critically evaluate not only information, but also one's own values, motivations, and attitudes. This mechanism also helps to resist manipulation and information overload, and develops skills of value self-identification in the digital space.

The creative-transformational mechanism expresses the highest level of axiological reflection, as it involves not only the awareness of existing values, but also the creation of

new meanings, norms and cultural codes of digital education. This mechanism activates innovative thinking aimed at constructing future models of educational interaction.

The level of ICT integration in modern education demonstrates a qualitatively new dynamic of institutional transformations covering the structure, content and methods of organizing the educational process. Informational and communicative technologies are gradually moving from being auxiliary tools to becoming a system-forming factor that determines the logic of the development of the digital educational ecosystem and provides new formats for interaction between participants in the educational environment (Fernández et al., 2023).

First and foremost, ICTs perform a key informational function, which consists in creating digitally structured knowledge arrays and ensuring their accessibility, mobility and interactivity. Thanks to digital libraries, cloud storage and educational platforms, there is a transition from linear models of information presentation to networked, multimodal and dynamically updated educational resources (Nalyvaiko, 2023).

An equally important component of digital technology integration is the communication function, which enables the creation and maintenance of online educational communities where collective forms of learning, interdisciplinary dialogue and joint projects can be implemented. ICT also has a significant impact on the cognitive sphere, as it implements a cognitive function aimed at developing digital literacy, critical thinking skills, analytical skills, and the ability to work with large amounts of information (Fazan et al., 2025). In addition, the organisational function is equally important, covering the digitisation of management and administrative procedures, the automation of educational processes, and the introduction of systems for monitoring and analysing learning outcomes (Polinkevych & Kuzmak, 2023). The comprehensive impact of ICT is clearly expressed through its innovative function, which determines the ability of educational systems to form and maintain digital ecosystems of varying levels of complexity. These include interactive platforms, intelligent educational systems, virtual laboratories, simulation environments, and artificial intelligence tools that personalise the learning process and increase its adaptability (Jackson & Jackson, 2024; Kostikova et al., 2024; Gulich., & Chetveryk, 2025).

In the current context of digital transformation in education, the level of innovation activity is defined as an influential indicator of the productive and evolutionary potential of the educational environment. Its structure encompasses three interrelated dimensions: individual, collective and institutional. Each of these dimensions shapes specific mechanisms for the production, reproduction and dissemination of innovative practices.

At the individual level, innovative activity manifests itself primarily through the formation of digital competence, which is a basic condition for the effective use of information and communication technologies in professional activities. This dimension includes the ability to critically evaluate digital resources, master technological tools, and skills for safe work in the information space (Nychkalo et al., 2025). The collective level emerges as a dynamic space for interaction, within which professional communities, interdisciplinary teams, and digital platforms form a new culture of joint intellectual creation (Fedorchuk, 2024). At the institutional level, innovative activity takes on a strategic dimension and is implemented through the activities of innovation laboratories, technology transfer centres, digital campuses, and educational innovation hubs (Liannoi et al., 2024).

It should be noted that the dynamics of innovation in education are characterised by a certain sequence: ICT → digital competence → creativity → innovative culture →

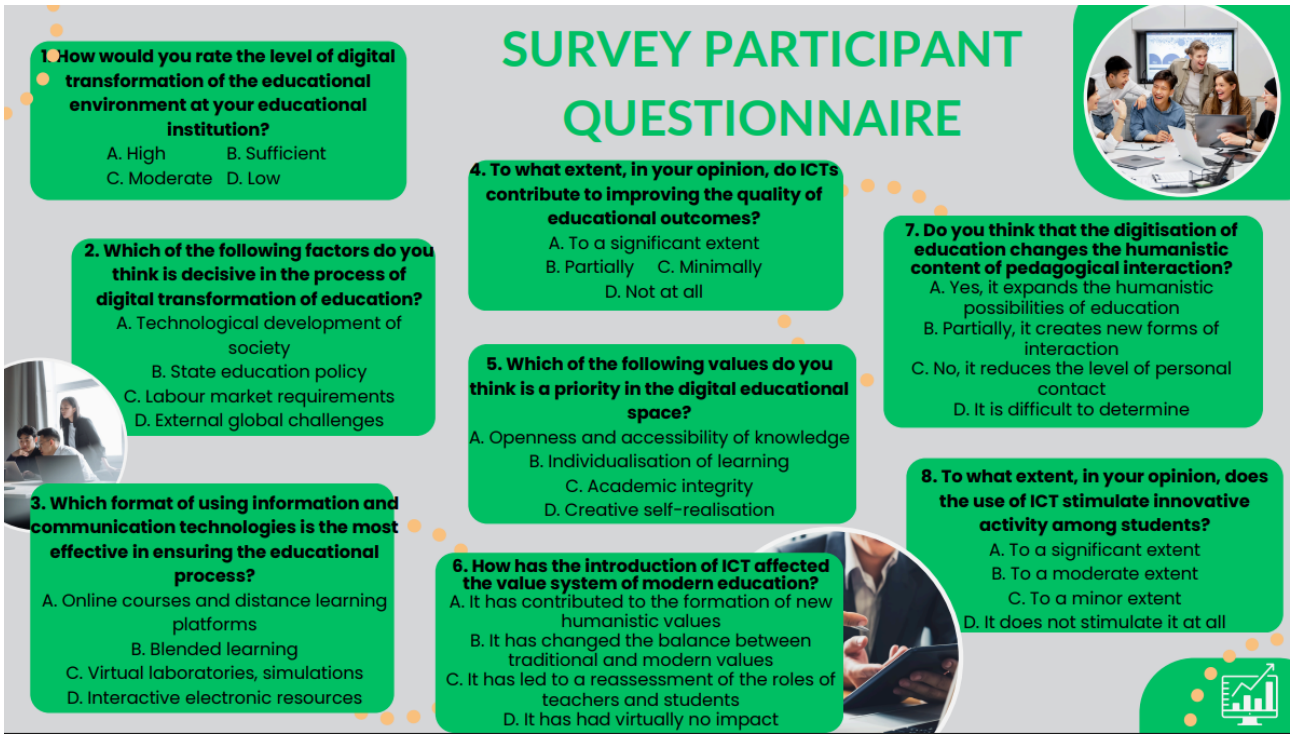
educational synergy. Informational and communicative technologies trigger development mechanisms, thereby forming new ways of cognition and creative interaction. Digital competence creates the basis for creativity as the ability to generate new ideas, design them and implement them in educational practice.

Creativity, in turn, transforms into an innovative culture that integrates the value, communicative and organisational aspects of modernising education. The end result of the outlined directions is educational synergy – a state of coordinated development of all levels of the educational system, in which innovations become not separate elements, but a systemic characteristic of institutional dynamics (Mihai et al., 2025).

As part of the proposed study, we developed a questionnaire and surveyed 50 teachers and students of higher education at the V.G. Korolenko Poltava National Pedagogical University. The survey was conducted to identify the characteristics of institutional changes caused by digitalisation and to analyse the impact of ICT on the transformation of the value, cognitive and activity components of the educational process (Figure 2).

Figure 2

Survey participant questionnaire



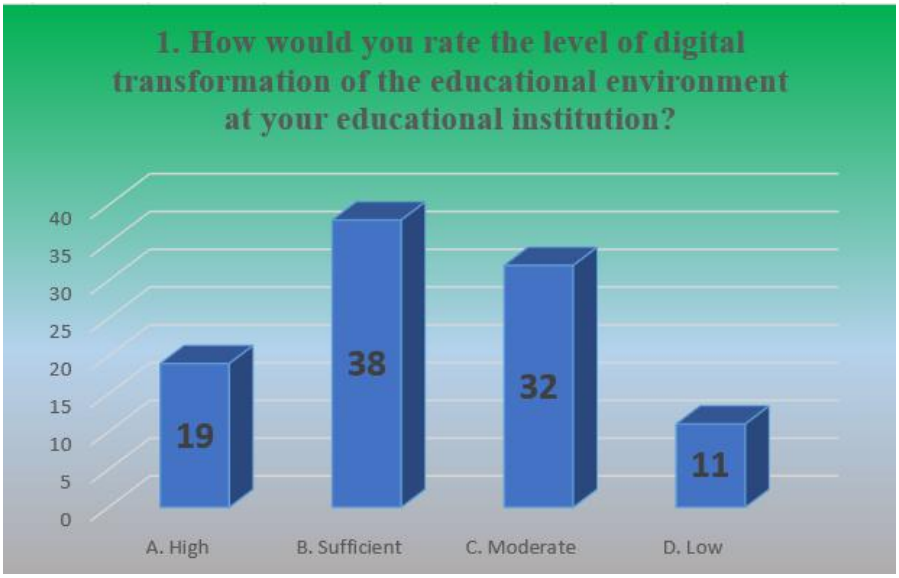
Source: developed by the authors

The survey results show that teachers and higher education students have clear guidelines regarding digital transformation processes and their axiological basis. The majority of respondents assess the level of digitalisation as sufficient (38%) and moderate (32%).

Only 19% of respondents consider the level of transformation to be high, and 11% consider it to be low. The configuration of responses indicates that digitalisation is perceived as an irreversible and already institutionalised process. However, the problem of uneven material and technical support remains one of the key challenges (Figure 3).

Figure 3

Question 1. How would you rate the level of digital transformation of the educational environment at your educational institution?

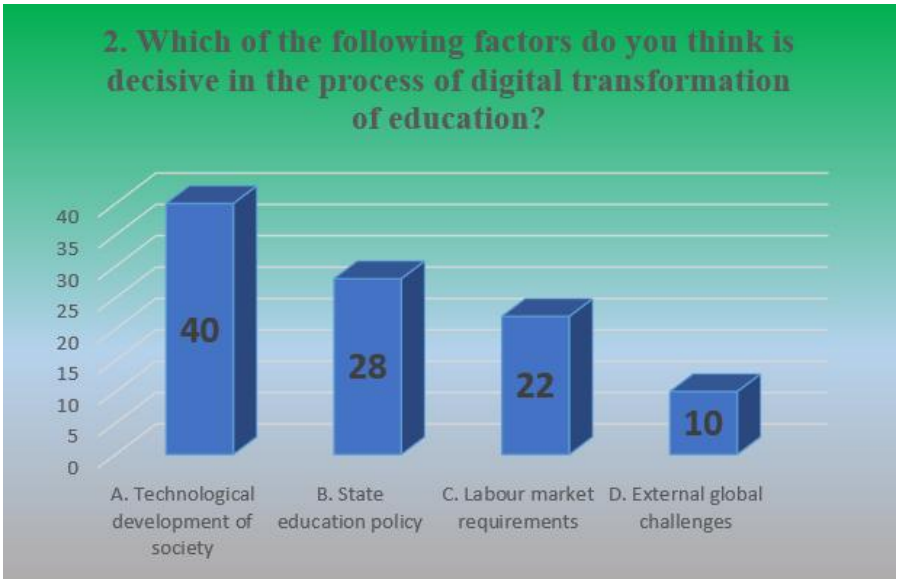


Source: developed by the authors

Technological development of society (40%) and state education policy (28%) were identified by respondents as the most significant factors of change. At the same time, labour market demands (22%) and global challenges (10%) play a secondary role, although their strategic impact on the formation of educational trajectories is obvious. The dominance of the technological factor confirms the direct dependence of educational transformations on the external environment rather than on the internal initiative of institutions (Figure 4).

Figure 4

Question 2. Which of the following factors do you think is decisive in the process of digital transformation of education?



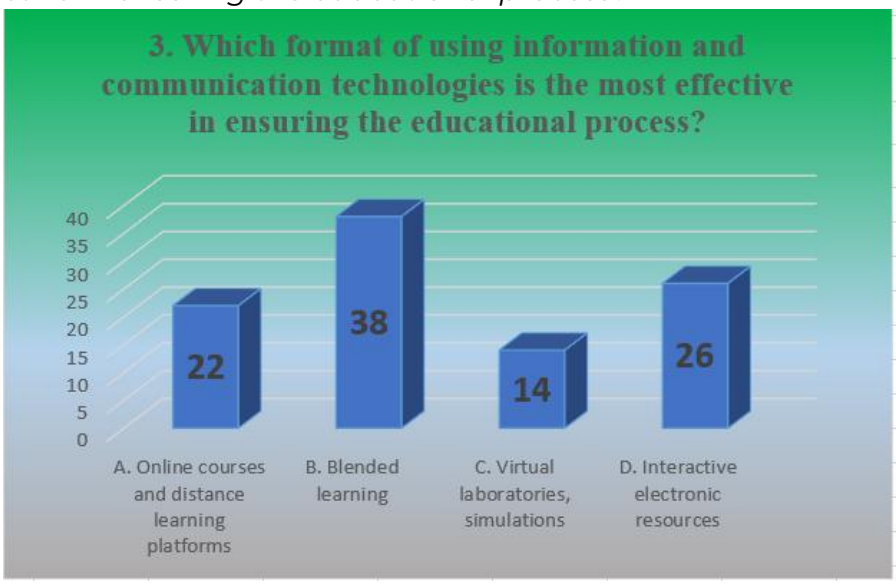
Source: developed by the authors

According to respondents, blended learning (38%) and interactive electronic resources (26%) are the most effective. Online courses (22%) and virtual laboratories (14%) are less popular. A summary of the data obtained allows us to conclude that respondents currently consider comprehensive, integrative models of digital interaction that

preserve pedagogical logic while expanding the technological toolkit to be the most effective (Figure 5).

Figure 5

Question 3. Which format of using information and communication technologies is the most effective in ensuring the educational process?

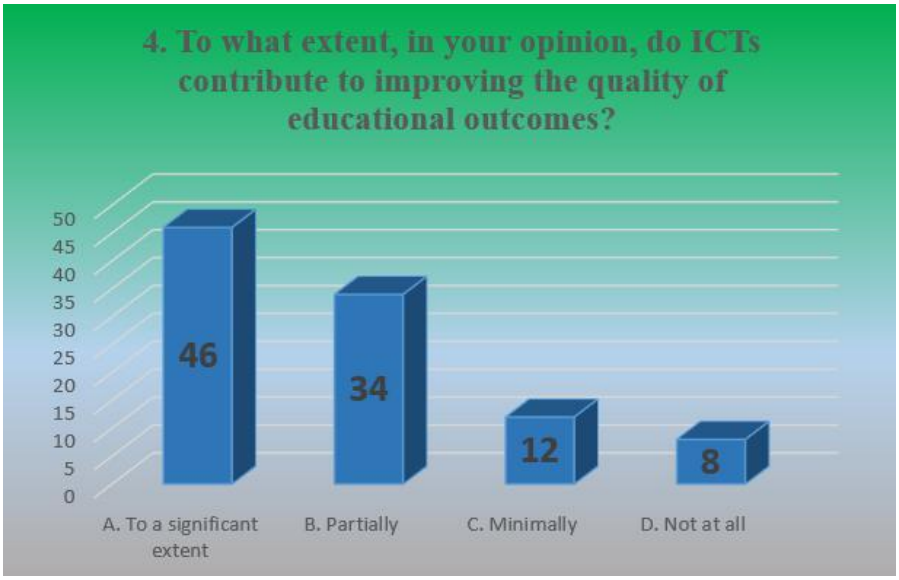


Source: developed by the authors

Respondents most often indicated that ICT significantly (46%) or partially (34%) improves the quality of results. The results indicate a positive correlation between digital technologies and learning effectiveness. Only 12% and 8% indicate a weak or no impact, which can be attributed to an individual pedagogical style or low levels of digital competence (Figure 6).

Figure 6

Question 4. To what extent, in your opinion, do ICTs contribute to improving the quality of educational outcomes?



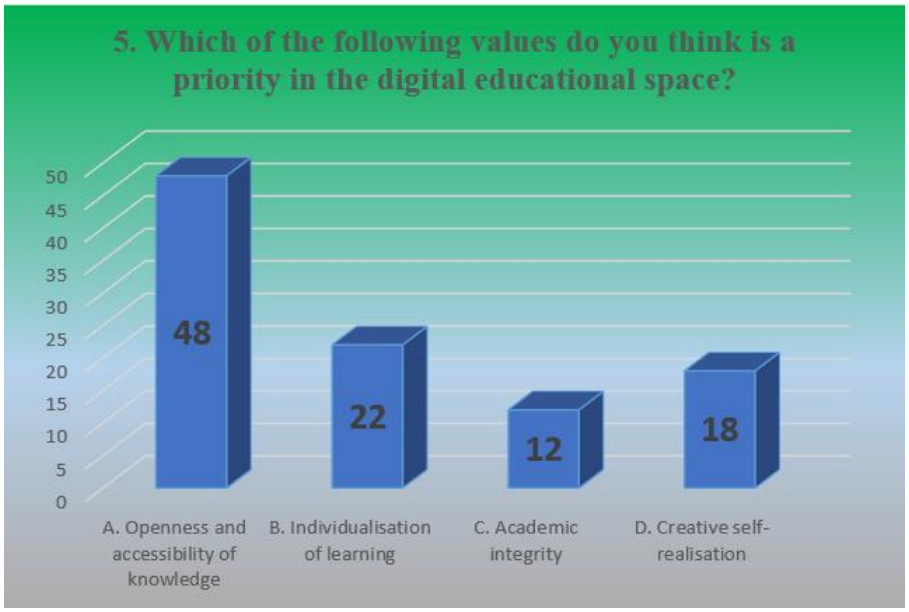
Source: developed by the authors

At the same time, respondents noted openness and accessibility of knowledge as a priority value (48%), which is consistent with global development trends. Individualisation of learning was chosen by 22%, confirming the shift in focus towards personalised educational trajectories. Academic integrity was chosen by 12%, reflecting the relevance of ethical components in the digital space. Creative self-realisation was supported by 18% of

respondents. The results of the study allow us to conclude that digitalisation is not only a technological factor but also a tool for shaping a new system of educational values (Figure 7).

Figure 7

Question 5. Which of the following values do you think is a priority in the digital educational space?

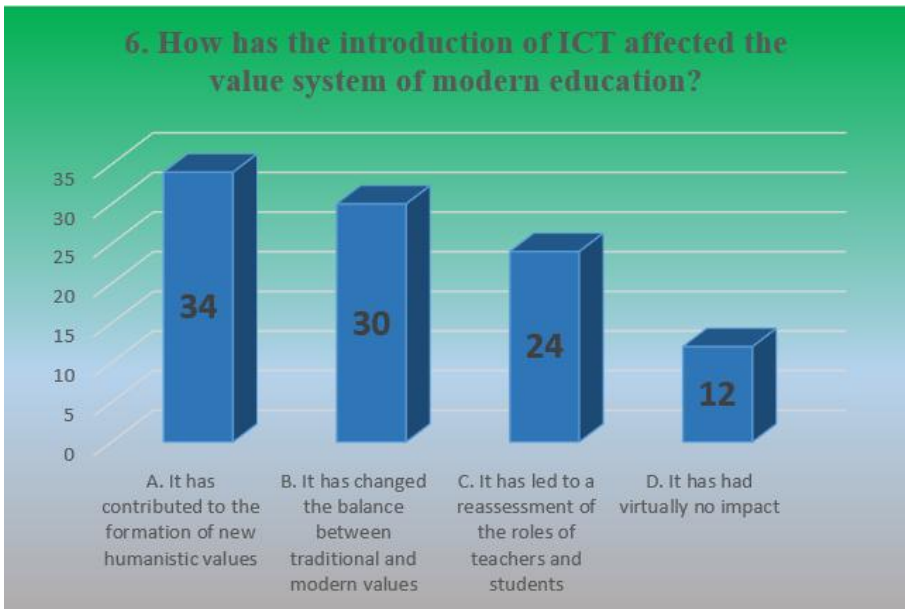


Source: developed by the authors

Further analysis of the responses shows that 34% of respondents see digitalisation as a factor in the formation of new humanistic orientations, 30% note a change in the balance between traditional and modern values, and 24% note a reassessment of the roles of teachers and students. Only 12% do not feel that digital changes have a significant impact on the value structure of education. The data obtained confirm that ICTs cause profound axiological shifts that affect models of pedagogical interaction, the nature of communication, and new forms of academic responsibility (Figure 8).

Figure 8

Question 6. How has the introduction of ICT affected the value system of modern education?

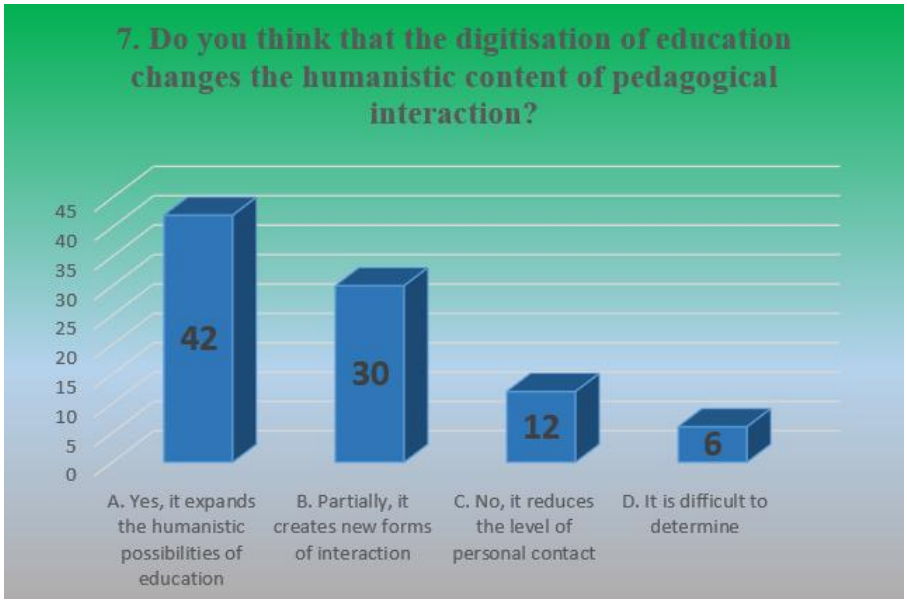


Source: developed by the authors

42% of respondents believe that ICT expands the humanistic potential of pedagogical interaction, while 30% point to the emergence of new forms of interaction. At the same time, 12% note a decrease in the level of personal contact, and 6% find it difficult to determine. The survey results show that digitalisation is largely seen as a tool for the development of humanistic education, but requires further pedagogical consideration (Figure 9).

Figure 9

Question 7. Do you think that the digitisation of education changes the humanistic content of pedagogical interaction?

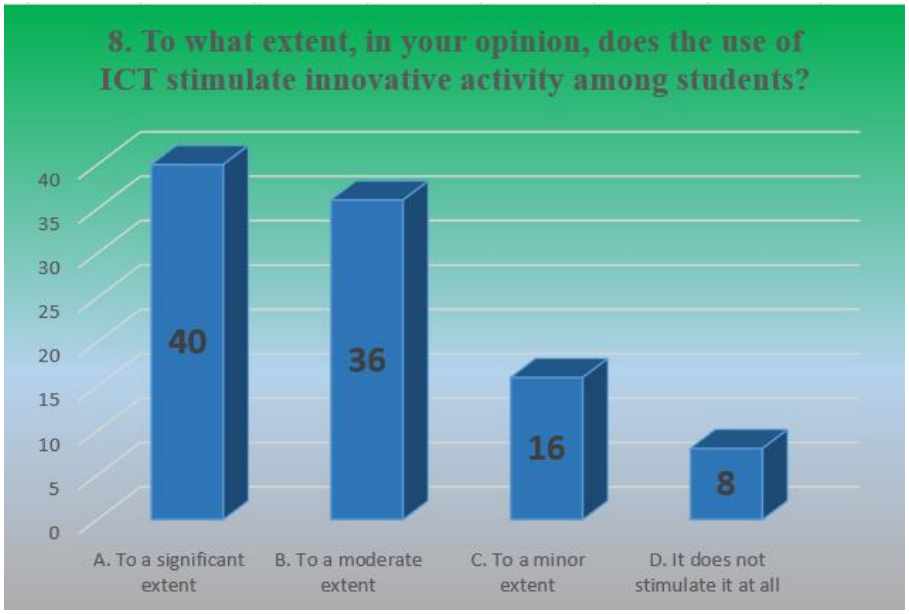


Source: developed by the authors

According to respondents, ICT stimulates innovative activity to a significant (40%) or moderate (36%) extent, which indicates a direct dependence between digital tools and applicants' readiness for creative exploration. Only 16% and 8% assess this impact as insignificant or non-existent (Figure 10).

Figure 10

Question 8. To what extent, in your opinion, does the use of ICT stimulate innovative activity among students?



Source: developed by the authors

A summary of the obtained results allows us to conclude the following: the digital transformation of education at the present stage is systemic in nature, concerns infrastructural, organisational and axiological aspects, contributes to the revision of traditional educational models and opens up prospects for the formation of a new innovative and humanistic culture. The survey results show that ICT plays a role not only as a technological tool, but also as a vehicle for meaningful, ethical and cultural changes that will determine the trajectory of education development in the near future.

DISCUSSION

The results of the study confirm the provisions of modern scientific concepts, according to which the digitilisation of higher education appears as a multidimensional institutional process that encompasses not only the introduction of information and communication technologies, but also the structural transformation of educational practices, management mechanisms and value orientations. The work of N. Bobro (2025), which focuses on changing the information architecture of universities as the basis for forming an innovation-oriented educational environment, is of scientific value. The empirical data obtained correlate with these approaches, confirming the trend towards institutional rethinking of educational activities in the context of digital transformation.

At the same time, the results of the study reveal a number of problematic aspects that form the field of scientific discussion on the consequences of the active use of ICT in higher education. The scientific research of I. Buzhina, M. Imeridze and O. Kuzmenko (2023) emphasises the ambivalence of innovative technologies, which, along with expanding didactic opportunities, can cause an increase in cognitive load and formalisation of educational interaction. These provisions are specified in the works of D. Danilevsky (2024) and V. Fazan with co-authors (2025), which focus on the neurophysiological and communicative challenges of distance and blended learning. The trend towards a decrease in the intensity of direct pedagogical contact identified in the study is consistent with the conclusions of O. Polinkevich and O. Kuzmak (2023) regarding the quality of distance education in the Ukrainian context, which allows us to consider digitalisation as a process with internally contradictory dynamics.

Within the axiological approach, the digital transformation of education is understood as a process whose effectiveness is determined not only by the level of technological equipment, but above all by the ability of educational institutions to integrate innovations into the humanistic paradigm of development. The works of V. G. Kremniy, L. M. Grynevych, V. I. Lugovoy, and Zh. V. Talanova (2022) emphasise the need to align digital changes with the tasks of ensuring the quality of education and innovation-oriented social development. At the same time, the research of I. Zakryzhevska and L. Ovod (2024) highlights the problem of forming digital ethics and academic integrity as key regulators of educational activity in a digital environment. This way, the results of the study allow us to conclude that the modification dynamics of institutional changes in higher education should be considered as a holistic process within which technological innovations interact with value-normative regulators of educational practice.

CONCLUSIONS

Analysis of the materials we have studied allows us to conclude that digital transformation initiates modifications in the institutional structure of education, covering both functional and axiological components. Informational and communicative technologies act as a catalyst for change, ensuring: the expansion of the information capabilities of the educational environment; the formation of new

communication models; the increase of cognitive autonomy and digital competence of participants in the educational process; the innovative renewal of professional activity; the reorientation of the value priorities of education in accordance with the requirements of digital culture. This way, ICT acts not only as a technological tool, but also as an institutional and axiological factor that determines the vector of development of modern education and forms a new paradigm for the development of innovations.

At the same time, the empirical data we obtained during the study indicate that respondents have a predominantly positive perception of the functional role of ICT in modern educational processes. This way, 42% of respondents believe that digital technologies contribute to strengthening the humanistic potential of pedagogical interaction. About 30% of respondents emphasise the emergence of new forms of communication and interaction, which indicates a transformation of the traditional structure of educational communication. At the same time, 12% of participants note that the level of personal contact is decreasing which indicates the presence of certain barriers in the humanitarian dimension of digitalisation, associated with the risk of reducing interpersonal relationships and the emotional component of pedagogical interaction.

Overall, the survey results show that ICT is seen by most respondents as a factor in the humanisation and modernisation of the educational process, but at the same time reveal the need for further optimisation of pedagogical practices aimed at combining digital and traditional forms of interaction. This confirms the position on the modification dynamics of institutional changes, within which digitalisation acts as a resource for innovative activity, but requires balanced consideration of its axiological consequences.

We believe that the development of analytical approaches to measuring innovation activity in education is a promising direction. In particular, it is advisable to develop comprehensive indicators (metrics of digital competence, creativity, innovative productivity, cognitive dynamics) that will allow for comparative analysis between educational institutions of different levels and types.

CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest regarding the publication of this paper.

FUNDING

The authors declare that this study received no specific financial support.

ARTIFICIAL INTELLIGENCE STATEMENT

No artificial intelligence tools were used in the preparation of this manuscript.

REFERENCES

Bobro, N. (2025). Transforming information architecture in the context of university digitalization. *Journal of Information Technologies in Education, 57*, 7–13. https://doi.org/10.14308/ite000788.

Buzhyna, I. V., Imeridze, M. B., & Kuzmenko, O. H. (2023). Vykorystannia innovatsiinykh tekhnolohii u vyshchii osviti: problemy ta perspektyvy [Use of innovative technologies in higher education: Problems and prospects]. *Perspektyvy ta innovatsii nauky – Perspectives and Innovations of Science, 14*(32), 51–61. https://doi.org/10.52058/2786-4952-2023-14(32)-51-61 [in Ukrainian].

Danylevskyi, D. (2024). The impact of distance learning on the development of information and communication skills of students of higher education institutions. *Professional Education: Methodology, Theory and Technologies, 10*(1), 22–33. https://doi.org/10.69587/pemtt/1.2024.22

Fazan, V., Fazan, T., Fazan, V., & Danylevskyi, D. (2025). Digitalisation of education and cognitive load: Neurophysiological challenges for higher education institutions in the 21st century. *Educational Challenges, 30*(2), 191–205. https://doi.org/10.34142/2709-7986.2025.30.2.15

Fedorchuk, O. (2024). Osoblyvosti zastosuvannia informatsiino-komunikatsiinykh tekhnolohii u vyshchii yurydychnii osviti [Peculiarities of applying information and communicative technologies in the higher legal education]. *Modern Information Technologies and Innovation Methodologies of Education in Professional Training Methodology Theory Experience Problems, 70,* 221–230. https://doi.org/10.31652/2412-1142-2023-70-221-230 [in Ukrainian].

Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K. (2023). Digital transformation initiatives in higher education institutions: A multivocal literature review. *Education and Information Technologies, 28*(10), 12351–12382. https://doi.org/10.1007/s10639-022-11544-0

Gulich, O., & Chetveryk, V. (2025). Generative artificial intelligence as a tool for psychological and motivational support in foreign language learning. *Educational Challenge*s, 30(2), 248–261. https://doi.org/10.34142/2709-7986.2025.30.2.19

Jackson, E.A., & Jackson, H.F. (2024). Enhancing human knowledge and capabilities with Artificial Intelligence tools for education. *Educational Challenges*, *29*(2), 139–150. https://doi.org/10.34142/2709-7986.2024.29.2.09

Kanevska, I. M., Prystupa, L. M., & Hovorukha, D. O. (2023). Teoretychni aspekty tsyfrovizatsii vyshchoi osvity: problemy i perspektyvy rozvytku [Theoretical aspects of digitalization of higher education: Problems and development prospects]. *Ekonomika ta suspilstvo – Economy and Society], 53*. https://doi.org/10.32782/2524-0072/2023-53-58 [in Ukrainian].

Kostikova, I., Holubnycha, L., Besarab, T., Moshynska, O., Moroz, T., & Shamaieva, I. (2024). Chat GPT for Professional English Course Development. *International Journal of Interactive Mobile Technologies, 18*(02), 68–81. https://doi.org/10.3991/ijim.v18i02.46623

Kremen, V. G., Hrynevych, L. M., Lugovyi, V. I., & Talanova, Z. V. (2022). Quality of Education and Innovation-Driven Development: The New Ukrainian School Reform in the Context of Global Trends. *Science and Innovation, 18*(1), 29–43. https://doi.org/10.15407/scine18.01.029

Liannoi, Y., Khrapatyi, S., Hanzha, V., Kononova, D., & Mykhailova, O. (2024). Public Management of Education and Science: Tendencies for Globalization, Digitalization, and Ukrainization. *European Project Management Journal*, *14*(2), 57–77. https://doi.org/10.56889/hycc4784

Mihai, L.-S., Sitnikov, V. V., Sichigea, M., Vasilescu, L., Băndoi, A., Sitnikov, C., & Mănescu, L.-G. (2025). A bibliometric analysis of the role of Digitalization in achieving Sustainability-Oriented Innovation. *Sustainability*, *17*(13), 5822. https://doi.org/10.3390/su17135822

Nalyvaiko, O. O. (2023). Perspektyvy vykorystannia neironnykh merezh u vyshchii osviti Ukrainy [Prospects of using neural networks in higher education of ukraine]. *Informatsiini tekhnolohii ta zasoby navchannia – Information Technologies and Learning Tools, 97*(5), 1–17. https://doi.org/10.33407/itlt.v97i5.5322 [in Ukrainian].

Nychkalo, N., Gurevych, R., & Vizniuk, I. (2025). Innovative methods for training postgraduate students in the context of digital transformation of education. *Information Technologies and Learning Tools, 109*(5), 1–15. https://doi.org/10.33407/itlt.v109i5.6281

Paños-Castro, J., Korres, O., Iriondo, I., & Petchamé, J. (2024). Digital Transformation and Teaching Innovation in Higher Education: A Case Study. *Education Sciences*, *14*(8), Article 820. https://doi.org/10.3390/educsci14080820

Polinkevych, O., & Kuzmak, O. (2023). The quality of distance education with ICT: Simulation of the Ukrainian scenario. *Journal of Information Technologies in Education (ITE),* 54, 52–67. https://doi.org/10.14308/ite000775

Shenkoya, T., & Kim, E. (2023). Sustainability in Higher Education: Digital Transformation of the Fourth Industrial Revolution and Its Impact on Open Knowledge. *Sustainability, 15*(3), Article 2473. https://doi.org/10.3390/su15032473

Vervoort, A., González-Castellano, N., Gielen, M., Schouteden, W. & Struyven, K. (2024). Getting Ahead of the Curve – Insights from SE and HE Teachers' Digital Transformation Experiences for Future Post-Pandemic Challenges. *Creative Education, 15*(12), 2706–2733. https://doi.org/10.4236/ce.2024.1512164

Vozniuk, Ya. (2025). Orhanizatsiino-tekhnolohichni pidkhody ta modeli tsyfrovizatsii osvitnoi diialnosti zakladiv vyshchoi osvity [Organizational and technological approaches and models of digitalization of educational activities of higher education institutions]. *Ekonomika ta suspilstvo – Economy and Society, 71*. https://doi.org/10.32782/2524-0072/2025-71-72 [in Ukrainian].

Zakryzhevska, I., & Ovod, L. (2024). Rol osvity u formuvanni tsyfrovoi etyky ta pidtrymtsi akademichnoi dobrochesnosti [The role of education in forming digital ethics and supporting academic honor]. *Visnyk Khmelnytskoho natsionalnoho universytetu. Ekonomichni nauky – Bulletin of Khmelnytskyi National University. Economic Sciences, 5*, 232–237. https://doi.org/10.31891/2307-5740-2024-334-33 [in Ukrainian].