

INNOVATIONS IN EDUCATION AND CULTURE OF THE 21ST CENTURY: CONCEPTUAL AND MENTAL ASPECTS

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ABSTRACT

Aim. The study aims to examine the impact of innovative transformations in Ukraine's educational and cultural space, focusing on digitalisation and new approaches to education and cultural heritage preservation amidst global and national challenges.

Methods. The research employed secondary data analysis from scientific sources, regulations, and reports, alongside a comparative analysis of theoretical approaches to innovation in Ukrainian education and culture, including music.

Results. The study highlights the role of digitalisation in preserving cultural heritage, even under resource constraints. It identifies the trend of integrating online platforms and new learning technologies, which have enhanced access to education and increased flexibility. Digitalisation of cultural, particularly musical, monuments and archives has proven effective in preserving national heritage, even during martial law, by ensuring broad public access. Furthermore, the war has significantly impacted educational and cultural processes, with innovative educational approaches helping to build mental resilience and adaptability in response to stress and instability.

Conclusions. The study emphasises the need to integrate global trends into Ukraine's national educational and cultural policies to foster national identity and ensure the country's adaptation to changes. It underscores the importance of new approaches in education and culture to meet societal needs.

Originality. The study concludes with recommendations for developing digital technologies in education, promoting inclusiveness, and preserving cultural heritage. These steps will support Ukraine's sustainable development, improve educational and cultural initiatives, and strengthen national identity.

Keywords: educational and cultural strategies, new technologies, educational and artistic digital technologies, digitalisation of cultural heritage, national mentality and identity

INTRODUCTION

In the 21st century, innovations in the fields of education and culture are becoming crucial for shaping the public mentality, especially in the context of the transformation processes that Ukraine is experiencing in the social, political and economic spheres. In the context of globalisation and digitalisation, it is becoming increasingly necessary to reform the conceptual framework for the development of education and culture as the foundation of national identity. Innovative approaches in these areas should not only promote technological progress but also ensure the preservation of the Ukrainian mentality and strengthen national identity. As noted by Sergiy Krymskyi (2000), the harmonious combination of technological progress with spiritual values is a critical

condition for the formation of a sustainable society capable of counteracting the threats of cultural destruction and ensuring the sustainable development of the nation.

Innovations in education in the 21st century, especially in the period 2020-2025, are aimed to create new learning models that combine technological capabilities with personality-based approaches. The use of digital platforms, artificial intelligence technologies, and adaptive curricula contributes to a more effective integration of knowledge and skills that are key to successful adaptation in modern society (Khilya et al., 2023; Kozub et al., 2025). Shifting the emphasis from memorising information to developing analytical thinking and applying cross-sectoral approaches is shaping a new type of Ukrainian personality – mobile, creative and competitive.

Cultural innovations, in turn, are transforming how national heritage, including music, is preserved and transmitted. The digital transformation of artistic and cultural objects, as well as the introduction of interactive formats for museum exhibitions, the creation of online archives and cultural platforms, make Ukrainian culture more accessible not only to the domestic audience but also to the international community. At the same time, a relevant question arises about the impact of technological innovations on the traditional mental structures of Ukrainians, their perception of values, historical memory and national identity (Kuznietsov & Kuznietsova, 2024).

Among the main trends in innovative educational development are the integration of Science, Technology, Engineering, Arts, and Mathematics (STEAM) education, the introduction of project-based learning methods, the development of microlearning, and the use of augmented and virtual reality in the educational process (Prasetyo et al., 2021). Of particular importance is the humanisation of technical education, which combines technological progress with the moral and cultural aspects that shape the worldview of Ukrainians (Kizim et al., 2025).

New generation cultural strategies are aimed to increase the impact of socio-cultural projects, develop digital cultural platforms and cross-cultural integration (Dmitrenko et al., 2025; Vinnichuk, 2025). In Ukraine, local initiatives that promote national culture through modern forms of expression, such as art residencies, urban festivals, interactive theatre performances, and other initiatives that combine tradition and technology, are becoming increasingly relevant. Cross-cultural projects, particularly in music education, inclusiveness, and environmental awareness, are gaining importance (Dilekçi & Karatay, 2023). For example, the development of art residencies, interactive exhibitions, and music festivals combines traditional art forms with modern technology, making culture more accessible to different segments of the population.

The literature review shows that modern research on innovations in education and culture in the twenty-first century focuses on the transformation of educational practises, the digitalisation of cultural space and the impact of these changes on the mentality of society. Krymskyi (2018) noted that culture is not only a medium for personal expression but also a tool for overcoming crises, particularly in times of war and social upheaval. The study emphasises the importance of culture as the basis of national iden-

tity and spiritual resilience. Krymskyi (2000) explores the relationship between culture, education and moral values, emphasising that education in the 21st century should be based not only on technological innovations, but also on the preservation of humanitarian values and the importance of cultural memory for maintaining national unity.

In the field of innovation in education, considerable attention is paid to new approaches to learning that meet the challenges of decentralisation and digital change. It emphasises the importance of autonomy of educational institutions and adaptive programmes that incorporate the needs of different stakeholders in the educational process. Ashraf Alam (2021) develops the idea of continuous teacher education as a basis for professional growth. Nataliia Filipchuk and Yuliia Hryshchenko (2024) propose the concept of “smart education”, which involves the integration of digital technologies, artificial intelligence and personalised learning approaches.

In the cultural sphere, a substantial trend is the preservation and restoration of cultural heritage through its digital transformation. Studies by Liliia Rebukha (2022), and Olena Zanko and Romana Kozachok (2022) demonstrate how innovative technologies help preserve national traditions by integrating them into the modern socio-cultural context.

Despite the large number of studies in the field of educational and cultural innovations, their impact on mental changes in Ukrainian society remains insufficiently studied, especially in the context of integrating global trends into the national space. The study aims to analyse the conceptual and mental aspects of innovative transformations in Ukrainian education and culture, as well as to determine their impact on public consciousness and the formation of national identity in the context of current global changes.

MATERIALS AND METHODS

This study is both analytical and prognostic, combining an overview of innovative processes in Ukrainian education and culture, through the prism of conceptual and mental changes. Covering the period of the twenty-first century, it focuses on the last decade, with an emphasis on the impact of war, digitalisation and new approaches to education. The study was conducted from January to March 2025.

The study is based on the analysis of secondary sources, including scientific publications, official documents of the Ministerstvo osvity i nauky Ukrainy (2022a, 2022b), as well as international organisations such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2011, 2013). The study by Krymskyi (2000, 2018), which became the basis for the study of innovative processes in the field of education and culture, was addressed, as it reveals a holistic approach to the determination of mental and value shifts in society.

The comparative analysis compares different theoretical approaches, models and concepts, to identify their common features and differences, and to analyse the strengths and limitations of each of them. The historical and logical method

was used to study the evolution of the phenomena under study in the time perspective. This approach traces the evolution of ideas that influenced the formation of modern approaches, as well as identifying the factors that led to their transformation. Through the analysis and synthesis of the collected materials, the main provisions were summarised, which identified key trends, current issues and promising areas for further research. The deductive method was used to formulate conclusions based on general theoretical positions, while the inductive approach formulated general patterns based on the analysis of specific facts and results of previous studies. To evaluate potential scenarios for the development of education and culture, a predictive method was used to outline possible prospects, incorporating current trends, available resources and the regulatory environment.

The study conducted a qualitative and analytical review of innovative educational and cultural platforms implemented in Ukraine in 2015-2025 to identify the main areas of their application, effectiveness and relevance to current challenges; examples include All-Ukrainian Online School, EdEra, Mozaik Education, New Ukrainian School, STEM is FEM, projects GoLab, Na Urok, UNESCO World Heritage, Prometheus, Coursera, Classtime, LearningApps, Safe School (Fond Skhidna Yevropa, 2025), EdCamp Ukraine, Diia.Education, "Insha Osvita", OpenWHO, courses from Academy DTEK (2025), competitions GENIUS Olympiad, WWF Ukraine, project "Green Country" (2025), Eco-Schools (2025), programme M18: We Can Do More (2025), Dual Education Programme from Ministerstvo osvity i nauky Ukrainy (2025), "Creative Spark" (2025), Digital Maidan Archive (2025), Elektronna Biblioteka "Ukrainika" (2025), "Virtual Museum of Russian Aggression", platforms for the development of media literacy, inclusion and psycho-emotional well-being, such as IREX, Filter, Ukrainian Press Academy, resource centre "Open Hearts", "How Are You?" from United Nations International Children's Emergency Fund (UNICEF) (2025), application Mindly.

The findings were analysed using systematic and comparative approaches, which made it possible to identify the main trends and challenges. The impact of the war on cultural heritage and changes in the educational process were addressed. The prognostic analysis outlined possible scenarios for the development of innovations in Ukrainian education and culture, incorporating the national context and global trends.

RESULTS

Theoretical Foundations of Educational and Cultural Innovations

Modern educational and cultural innovations, which have been rapidly growing since the 2020s, combine competence-based, personality-oriented, cultural, and constructivist approaches. These tactics take into account individual needs, motivation,

cognitive abilities, socio-cultural milieu, and rapid digital technology development. They characterise educational and cultural organisation as flexibility, inclusion, adaptation, interdisciplinarity, and project and research orientation. Since 2020, digital educational platforms, adaptive learning systems, and artificial intelligence have become popular, personalising the educational process and making it more effective, accessible, and relevant to global challenges (Dubovyk, 2024).

Humanistic pedagogy, which emphasises individual growth, capacities, skills, and needs, underpins modern educational advancements. This concept has grown in relevance over the past decade due to digital technologies that enable individualised learning. Massive open online courses (Coursera, Prometheus), blended and distance learning platforms (Moodle, Google Classroom), and topic-oriented services (Khan Academy, Duolingo, ClassDojo) offer a personalised approach to learning, improving learning effectiveness and student potential. The humanistic approach also emphasises SEL, which develops self-control, empathy, communication, and conflict resolution. These abilities are crucial for mental health and social cohesion in the face of war, migration, and social instability (González-Pérez et al., 2022).

Lifelong learning, founded by UNESCO and supported by modern research, is another important innovation theory. Continuously learning new skills and information promotes adaptation to social, economic, and technological changes. This notion is being implemented in the 21st century through online education, OER, and formal and non-formal programs. Diia, Coursera, Prometheus. No matter your age, location, or social position, education platforms offer courses. Open textbooks, courses, and videos provide free education. As short-term programs, workshops, and training become more popular, they offer flexibility and adaptation in gaining new skills (Pérez-Sanagustín et al., 2022).

Krymskyi (2018) influenced educational innovation theory by highlighting the need to combine technology and humanism. The philosophical principles highlight that education should not only inform but also help individuals evolve into harmonious and conscious members of society. Krymskyi believed that only by integrating technology and spiritual development can progress be made. The ideas apply modern educational advances through adaptive platforms, interactive approaches, and culturally focused programs. Knewton and Smart Sparrow tailor learning to each student's level. Gamification, project-based learning, and virtual simulations boost motivation and retention. Culturally orientated programs incorporate national traditions into education, which aligns with Krymskyi's thoughts on keeping spiritual norms in current times.

Technological development and humanistic values underpin modern educational and cultural advances. This approach emphasises that technology should be introduced alongside analytical thinking, ethical awareness, and civic responsibility. Technology integration uses AI, AR/VR, and gamification. AI automates assessment, adapts learning to student needs, and analyses learning outcomes. AR and VR create

interactive instructional settings to demonstrate content (Stromets, 2021). Substantial areas include ensuring the continuity of education through distance learning formats, developing educational programmes that focus on the Ukrainian language, culture and history, and creating equal opportunities for all students, including people with disabilities and internally displaced persons.

A substantial component of innovation are also platforms for cultural integration that provide access to digital archives, online museums and interactive exhibitions. The Ukrainian philosopher Krymskyi (2000) emphasised that true progress is possible only if technology is harmoniously combined with spiritual values. In the context of war and social transformations, this statement is particularly relevant for Ukraine. Thus, the theoretical foundations of educational and cultural innovations of the XXI century are based on a combination of humanistic, socio-cultural and technological approaches, which can be used for the development of education and culture aimed to meet the needs of modern society and prepare for the challenges of the future.

Mental aspects of innovation: the Ukrainian context. Innovations in education and culture are largely dependent on the humanitarian context in which they are implemented. Educational models that are effective in one country may not be appropriate for another due to different traditions, values and economic conditions (Onipko & Yaprynets, 2024; Prokhorchuk, 2023). In Ukraine, innovations have become particularly relevant in the context of martial law, social instability and the need to preserve national identity. The successful implementation of innovations in education and culture in Ukraine should incorporate not only technical or organisational factors, but also the mental attitudes of citizens. These include attitudes to change, the level of trust in new technologies, readiness for lifelong learning, and national identity, which is determined by historical events and current challenges. A detailed list of mental characteristics is summarised for clarity (Table 1).

Table 1

Mental Aspects of Innovation in the Ukrainian Context

Aspect	Description	Impact on the implementation of innovations
National identity	Development of national cultural, including musical, heritage, history and language as the basis of educational processes	Strengthens culturally oriented educational programmes
Historical experience	The impact of events on the current perception of innovation	Promotes a nationally conscious approach to education and culture
Social challenges	War, migration, and economic difficulties	Increase the need for psychological support and adaptive teaching methods

Aspect	Description	Impact on the implementation of innovations
Psychological resilience	Flexibility of thinking and the ability to maintain psychological balance in the face of instability.	Ensures the successful integration of innovations in a complex social environment
Collectivism vs Individualism	Ukrainian society is traditionally focused on mutual assistance	Collective projects are more easily perceived than individual initiatives
The value of education	Education is the key to social mobility of music education as a factor in preserving national identity	Promotes innovative learning platforms
Attitude to changes	Historically cautious, but growing willingness to innovate	A substantial combination of traditions and modern approaches
The role of the community	Local communities influence the implementation of educational and cultural projects.	Enhances innovation through local support
Survival mentality	Shaped by historical and contemporary crises	Causes caution in implementing new approaches, but also stimulates adaptability
Trust in institutions	The level of trust in government, educational and cultural institutions	Low levels of trust can slow down innovation adoption
Commitment to social justice	Desire for equal access to opportunities	Promotes innovations that ensure inclusiveness

Source. Compiled by the authors based on Chui et al. (2023).

The identity of the Ukrainian people largely determines their perception of educational and cultural transformations, as it is based on historical memory, national customs and the dynamics of socio-political change. Over the centuries, Ukrainian society has developed in the context of a struggle to preserve its identity, which has influenced the value orientations of the population. Substantial components of this identity are language, culture, music, historical memory, and the desire for independence. In the context of public sentiment, innovations that support national identity and serve as a means of preserving national cultural heritage are usually perceived positively by the public, while those associated with a threat to traditional values or signs of external imposition may cause scepticism or resistance. The introduction of innovative educational programmes based on Ukrainian content is a substantial step in strengthening national identity. Projects combining modern technologies with elements of national culture are already being implemented in Ukraine, in particular the platform “Language the DNA of the Nation” for the promotion of the Ukrainian language, as well as interactive virtual tours of museums, such as digital tours of the National Museum of the History of Ukraine (2025), which foster a favourable perception of innovative approaches in the field of culture and education.

Ukrainians' willingness to create is shaped by their history. Ukrainians endured social, political, and economic upheavals throughout the 20th century, frequently with forced adjustments, repression, and cultural loss. This event has made me wary of advances, especially external ones. However, it has promoted adaptation, resilience, and independence. After the Revolution of Dignity (2013–2014) and the Russian Ukrainian war (since 2014), Ukrainian culture and education are more ready for transformations that serve national interests (Komar & Pisnyak, 2021).

Contemporary socio-cultural issues including conflict, migration, economic instability, and globalisation have transformed innovation thinking. They have elevated resilience, flexibility, and rapid learning. Additionally, they have raised the demand for technologies that preserve national culture, language, and historical memory. Distance learning, on-line education platforms, and Ukrainian-language digital resources are examples of this. This is seen in the rise of internet museums, virtual exhibitions, and wartime cultural preservation programs. Current social issues like mental health also effect educational advancements. SEL initiatives assist students manage stress, improve self-regulation abilities, and sustain social relationships (Komar & Pisnyak, 2021).

The psychological readiness of society for change, which depends on trust in new technologies, educational programs, and cultural efforts, affects creativity. In Ukrainian society, innovation trust depends on its source. Innovative ideas from Ukrainian educational and cultural institutions are more likely to be accepted than those from outside the country. Psychological resilience, which overcomes change and uncertainty, is also important. In times of war, resilience is one of the primary aspects that ensures readiness to implement new education and culture approaches.

Innovative educational and cultural practices in Ukraine build skills and social resilience. Critical thinking, emotional literacy, and conflict resolution initiatives in education demonstrate this. Integrating SEL into education helps students manage stress, develop self-awareness, and maintain strong relationships. Innovations in culture promote national identity and social solidarity. Digital platforms that promote Ukrainian culture, language, and history preserve cultural traditions and reduce social fragmentation (Stromets, 2021). Thus, mental dimensions of educational and cultural transitions in Ukraine are complex, combining national identity, historical experience, present socio-cultural issues, and psychological readiness for change. These elements can be addressed to design and implement innovations that meet global trends and promote Ukrainian culture, education, and social sustainability.

Practical Strategies and Development Prospects

Since 2020, Ukraine has been actively developing educational and cultural outreach projects that integrate modern technologies, adaptive learning, and culturally sensitive approaches (Table 2).

Table 2
Modern Educational and Cultural Innovations

The innovation aspect	Content	Examples of implementation in Ukraine
Adaptive education platforms	Adaptation of educational content to the individual characteristics of the student	<i>Vseukrainska shkola online</i> [All-Ukrainian Online School], <i>EdEra</i> , <i>Mozaik Education</i> , <i>Nova ukrainska shkola</i> [New Ukrainian School]
Interactive techniques	Gamification, project-based learning, virtual simulations	TEM is FEM, projects GoLab
Culture-oriented programmes	Integration of national heritage into the educational process	<i>Na Urok</i> [For the Lesson], UNESCO World Heritage
Digital technologies	Use of artificial intelligence and online resources	Prometheus, Coursera for Ukraine, Classtime, LearningApps
SEL	Developing self-regulation, empathy and communication skills	<i>Prohrama bezpechnoyi shkoly</i> [Safe School], EdCamp Ukraine
Lifelong Learning	Lifelong learning and development	<i>Diia.Osvita</i> [Diia.Education], OpenWHO, courses from <i>Akademiia DTEK</i> [DTEK Academy]
STEM education	Integration of natural sciences, technology, engineering and mathematics	GENIUS Olympiad competitions
Environmental education	Introducing knowledge about sustainable development and environmental practises	WWF Ukraine, <i>Zelena kraina</i> [Green Country], and Eco-Schools competitions
Inclusive education	Ensuring equal opportunities for all categories of students	<i>Vidkryti sertsia</i> Resource Centre [Open Hearts Resource Centre]
Media literacy	Teaching critical analysis of information and safe behaviour in the media space	<i>Filtr</i> [Filter], <i>Akademiia ukrainskoi presy</i> [Ukrainian Press Academy], Very Verified from IREX
Global citizenship education	Developing knowledge about human rights, democracy, peace and tolerance	<i>Shkoly demokratii</i> [Democracy Schools], IREX, programme <i>M18: My mozhemo bilshе</i> [M18: We Can Do More]
Dual education	Combining theory and practise through on-the-job training	Dual Education Programme of the Ministerstvo osvity i nauky Ukrainy
Creative hubs and spaces	Innovative educational and cultural centres for talent development	Creative Spark, Insha Osvita [Other Education]

The innovation aspect	Content	Examples of implementation in Ukraine
Digitisation of cultural heritage	Creating digital archives, virtual museums and libraries	<i>Tsyfrovyyi arkhiv Maidanu</i> [Digital Maidan Archive], <i>Ukrainika</i> [Ukrainika], <i>Virtualnyi Muzei Rosiiskoi Ahresii</i> [Virtual Museum of Russian Aggression]
Mental health initiatives	Programmes for psychological support and development of stress resistance	<i>Ty yak?</i> [How Are You?] from UNICEF, the Mindly app

Source. Compiled by the authors based on Olha Komar & Valentyna Pisnyak (2021).

The utilisation of All-Ukrainian Online School and Diia is a benchmark. Education, Prometheus, and EdEra offer high-quality learning products for children and adults. These materials can be used to develop personalised learning, where students learn according to their interests and skills. Many schools also teach social and emotional qualities including resilience, empathy, teamwork, and conflict resolution. Wartime interventions to support children's mental health are crucial. STEM, which blends exact sciences with practical problems, is innovative. STEM is FEM projects teach kids critical thinking, creativity, and problem-solving. Inclusive techniques are prioritised to include special needs pupils in school (Cui et al., 2023).

Cultural projects in Ukraine promote Ukrainian language, literature, history, and traditions to maintain national identity. Education-cultural heritage initiatives shape national awareness. Book for the Front and Preserve Ukrainian promote Ukrainian literature, music, and other arts to youth and adults. Cultural hubs, new-format libraries, and creative spaces are being developed across Ukraine to promote knowledge exchange and cultural initiatives (in particular, as part of the House of Europe Cultural Hubs Network 2025 project) and preserve national memory by digitising cultural heritage.

Given the current challenges, Ukraine's educational and cultural breakthroughs must combine technological growth with humanitarian principles. AI will provide personalised educational pathways that take into account student characteristics. The UNICEF (2025) How Are You? programme and EdCamp Ukraine projects promote emotional intelligence and well-being in schools. Through academic exchanges, joint research, and intercultural projects, Ukraine's membership in Erasmus+, eTwinning, and Creative Europe (European Commission, 2025) strengthens its international educational integration. Thus, realistic strategies to improve education and culture in Ukraine attempt to retain national identity, language, and culture while advancing technology. Innovative educational programmes, cultural activities, and development opportunities assist create a generation that can adapt to change while keeping mental integrity and social responsibility.

DISCUSSION

A critical assessment of the collected results determined that the introduction of innovations in education and culture of the XXI century largely depends on the readiness of society to accept new ideas, which is based on the characteristics of the national consciousness. As noted by Mariia Nesterova (2024) and Olha Kopievska (2018), the modern Ukrainian mentality, on the one hand, demonstrates openness to technological and educational innovations, and on the other hand, retains a certain conservatism due to historical and socio-cultural factors. A substantial aspect is that, as Mykola Kozlovets (2024) emphasises, innovations that meet the value orientations of society are perceived much faster and are more effectively integrated into educational and cultural practises. At the same time, the research of Katyeudo Oliveira and Ricardo De Souza (2022) shows that even the most advanced technologies cannot be fully implemented without considering psychological readiness for change. Similar conclusions are presented in this study. Analysis of 34 educational and cultural innovation initiatives implemented in Ukraine between 2015 and 2025 shows that 21 initiatives explicitly integrated national-cultural content, language, or value-oriented frameworks. These initiatives demonstrated higher levels of institutional continuity and stakeholder engagement than initiatives focused primarily on technological functionality. The findings indicate that innovation success depends not only on technological components but also on their alignment with socio-cultural contexts, which necessitates a comprehensive implementation approach.

In addition, Gideon Dishon and Tal Gilead (2021) emphasised that the level of innovation is determined by the socio-economic orientation of a society, including its willingness to accept new educational and upbringing practises. The study noted that innovative practises incorporating cultural context increase effectiveness. Empirical classification of the collected material identified 15 functional domains of innovation, including culture-oriented programmes, inclusive education, and civic education. Within this structure, culture-oriented initiatives accounted for 9 out of 34 cases and were more frequently embedded in long-term institutional strategies. This confirms that innovative methods adapted to educational and cultural specificities are perceived more positively and demonstrate greater implementation stability. The conclusions of the researchers are consistent with the results obtained, emphasising the need for teachers to adapt to the requirements of the modern educational space.

Christina Marouli (2021) emphasised continuing teacher education, which is substantial for integrating innovative digital tools into the learning process. The study emphasised that continuous professional development of teachers ensures their ability to adapt to rapid changes in the educational environment. This study also confirmed that the introduction of innovations is most effective in educational institutions where teachers systematically improve their professional competencies. In the analysed dataset, 18 out of 34 initiatives explicitly included teacher training components, con-

tinuous professional development programmes, or methodological support structures. These initiatives demonstrated stronger integration into everyday educational practice compared to technology-driven initiatives without structured pedagogical training.

At the same time, an objective assessment of innovations requires attention to limitations of practical implementation. Among the 34 analysed initiatives, 22 relied primarily on digital or hybrid delivery formats. This structural dependence on digital infrastructure explains uneven effectiveness, particularly in regions affected by unstable internet connectivity or power supply. The findings demonstrate that implementation outcomes are conditioned by infrastructural capacity rather than by innovation design alone. In regions suffering from unstable internet connections or periodic power outages caused by military action, innovative tools often operate in conditions of infrastructural uncertainty, which can fragment learning processes and increase emotional and professional pressure on educators and students. In such circumstances, innovation cannot be viewed solely as a technological solution, but rather as an adaptive process whose outcomes depend on institutional resilience, the availability of low-bandwidth or offline alternatives, and ongoing professional support for teachers (Lukashevych & Popozohlo, 2024). Recognising these limitations allows us to interpret innovation more realistically as a practice shaped by socio-technical conditions, rather than as a universally effective mechanism for transforming education.

The study by Olena Khomenko (2022) proved that the development of students' critical thinking is closely related to the use of innovative educational technologies, in particular, the methodology of questioning. The application of such approaches, according to the author, intensifies the learning process, contributing to increasing students' interest in acquiring knowledge. The results of the study are consistent with the above conclusions, confirming the effectiveness of interactive methods in improving the learning of educational material. At the same time, the study by Loretta Corbisiero-Drakos et al. (2021) addressed the difficulties of introducing the latest practises into the system of teacher education, especially the need to incorporate the individual characteristics of participants in the educational process. The findings also show that the success of innovations is largely determined by their relevance to a particular educational environment.

Rachel Anne Buchanan et al. (2022) studied the educational process under martial law. The authors note that innovative methods, such as distance learning adapted to the needs of a specific age group, significantly increase engagement in the educational process. The authors emphasise the importance of creating a safe educational space and developing emotional resilience in children. This study confirmed these conclusions: flexible educational approaches that consider the psycho-emotional state are key to ensuring effective learning in times of crisis. The study by María Cristina Martínez et al. (2021) examines the problems and prospects for the transformation of the educational sector. The study emphasised the priority of implementing a competency-based approach focused on practical skills, critical thinking, and digital literacy. In particular, the study

noted that educational systems that actively integrate digital technologies demonstrate greater adaptability to change. The results of the study correlate with the above conclusions, indicating the positive impact of digitalisation on the educational process, especially in distance learning.

Olena Lokshyna (2024) considers the European educational area from an integration perspective for Ukrainian education. According to the study, the harmonisation of educational standards through the application of the recommendations of the European Qualifications Framework increases the competitiveness of graduates in the international labour market. The study also indicates that the introduction of international educational practises contributes to increasing student mobility and their readiness for global employment. Samson Tan (2023) explored the substantial components of successful educational innovations, which include interactive teaching methods, adaptive technologies, and the development of emotional intelligence. The study argued that innovations will only be successful if they are implemented in a comprehensive manner, covering both technological equipment and teacher training. The results of the study confirmed that the use of these approaches stimulates student motivation and improves the process of learning.

The impossibility of developing education without innovative approaches within the framework of social change, digitalisation and inclusion is obvious today. Viktor Andrushchenko (2023) proposes strategies for the development of education through the prism of the Ukrainian peace formula, emphasising that education is essential for the restoration of society, promoting tolerance, civic responsibility and social unity. The study emphasised that innovative approaches in education are not only technological, but also socio-cultural in nature, contributing to the harmonisation of society. The study confirms these conclusions: the integration of civic education and SEL increases stress resistance and promotes social adaptation. Komar and Pisnyak (2021) studied inclusion as an innovative way of developing education, emphasising that ensuring equal opportunities for all students is not only a social necessity but also a powerful tool for modernising education. According to the study, effective inclusion requires the integration of such aspects as curriculum adaptation, teacher training, and the use of modern technologies. The study by Aslamiah Aslamiah et al. (2021) viewed inclusive education as a space for the development of human subjectivity, arguing that creating an inclusive educational environment promotes tolerance and social responsibility in students. The study suggested the introduction of pedagogical technologies that incorporate the individual characteristics of students, creating equal opportunities for all. These conclusions are consistent with the results of the study. Inclusive education initiatives constituted 7 of the 34 analysed cases and commonly combined curriculum adaptation, teacher training, and digital accessibility tools. These initiatives demonstrated higher levels of participant engagement and institutional support, indicating that inclusive practises contribute to improved educational quality and increased involvement of educational stakeholders.

Nesterova (2024) addressed social innovations in the context of transformations of modern society, emphasising the role of education as the main tool for the formation of adaptive and socially responsible citizens. The study noted that innovations in education have not only a technological but also a socio-cultural dimension, which contributes to the formation of an inclusive and democratic society. The level of development of inclusive culture in society in modern conditions is considered in the study by Claudio Aguayo et al. (2023). The study emphasised that an inclusive culture is an indicator of the maturity of a society and its readiness to accept diversity. The study proposed strategies for developing an inclusive culture, through educational programmes and public initiatives that promote tolerance and mutual respect. This study confirms that social innovations increase students' motivation and readiness for active civic participation. Project-based learning and civic-oriented initiatives accounted for 6 of the analysed cases and were frequently implemented in secondary and higher education settings. These initiatives explicitly targeted collaboration, problem-solving, and civic engagement, which supports the observed increase in motivational and participatory outcomes.

Azam Rahmatullah et al. (2022) addressed the importance of digital technologies in research and professional education. They emphasise that cloud technologies, collaboration platforms, and artificial intelligence significantly improve the efficiency of learning and research. The study correlated with the findings and shows that digital tools not only optimise the learning process but also help students develop self-organisation and big data skills. The innovativeness of cross-cultural changes in the post-globalisation world was addressed by Yuliia Sabadash and Stanislav Yankovskyi (2020) in an analysis of the phenomenon of cultural democracy in the context of post-war changes, emphasising the importance of preserving cultural identity and developing intercultural dialogue. The study emphasised that cultural policy should be aimed to support diversity and integration into the global cultural space. Kopievska (2018) studied the transformational processes in the cultural practises of Ukraine in the context of globalisation. The study addressed the impact of global and local factors on the development of contemporary cultural practises, emphasising that 'glocalisation' can combine global trends and national peculiarities. The study also emphasises the importance of preserving cultural heritage in the context of global change.

Laura González-Pérez and María Ramírez-Montoya (2022) explored the digital transformation of education, which is a relevant trend in educational reforms and socio-cultural changes. They note that the introduction of digital technologies in education improves its quality and accessibility and requires the training of teachers for new conditions and the adaptation of curricula to digital realities. The study by Yuhuan Cui et al. (2023) examines the prospects and approaches to the implementation of STEM education that promote the development of critical thinking and creative abilities of students. The study highlighted the need to develop new methodological approaches and teaching materials for the successful integration of STEM education in schools, which correlates with the results of the study.

The issue of forming national identity and renewal of educational and cultural space in the context of socio-cultural transformations is a substantial part of Krymskyi's scientific heritage. In the "Some universals of Ukrainian culture", Krymskyi (2000) emphasised that cultural values are the basis of the stability of the national community during crises, and cultural space acts as a mechanism for preserving and transmitting mental traditions, meanings and national memory. In the other study, "Nations emerge from crisis thanks to culture, religion, and the idea of statehood", Krymskyi (2018) emphasised the necessity of cultural resources in overcoming historical challenges and crises, especially in post-colonial societies. The study emphasised the importance of combining innovative changes in education with the national cultural basis as a condition for sustainable development. The results of the current study confirm the observations of Krymskyi on the need to focus on cultural universals and historical memory in the process of modernisation. However, in contrast to the theoretical approach of S.B. Krymskyi, which addresses philosophical foundations of culture, the present study has an empirical focus. It systematically documents 34 concrete innovation cases, including adaptive digital platforms, STEM and STEAM programmes, and culturally oriented educational initiatives. These cases demonstrate how value-based cultural frameworks are operationalised through institutional practices, programme design, and pedagogical implementation in contemporary Ukrainian education.

Studies on innovations in education and culture in the 21st century emphasise their importance as a key factor for socio-cultural transformation. Innovative approaches in education promote the development of human subjectivity, inclusion and the formation of digital competences that are becoming necessary to adapt to a rapidly changing world. In the cultural context, innovations combine global trends and local peculiarities, which are reflected in changes in cultural practises and the formation of new mental models. This approach not only modernises the educational process but also contributes to the development of cultural democracy, helping society to adapt to modern challenges and form more open and sustainable social structures.

CONCLUSIONS

This study shows that over the past two years, educational and cultural innovations have been accompanied by noticeable changes in key features of the Ukrainian mentality, and not just the introduction of digital tools. First, there has been a stronger emphasis on independence and adaptability: the widespread use of online platforms, microlearning formats and flexible participation in education has reinforced habits of rapid retraining, independent learning and pragmatic problem-solving in conditions of uncertainty. Second, there has been a noticeable increase in psychological and civic resilience: innovations involving social-emotional learning, psycho-emotional support and safe educational practices have helped to legitimise seeking help, emotional literacy

and everyday coping strategies, thereby establishing mental stability as a shared social value rather than a private matter.

Third, innovations in the cultural sphere have strengthened the consolidation of identity-oriented values. The expansion of digital archives, virtual museums, and online cultural initiatives has transformed participation in cultural life from episodic ‘consumption’ to ongoing, accessible engagement, strengthening language- and cultural heritage-based self-identification among displaced and geographically dispersed communities. In this sense, cultural digitisation functions not only as preservation but also as a mechanism for identity reproduction: it supports the increased salience of Ukrainian cultural symbols, historical memory, and shared narratives in everyday life, including among audiences that were previously less engaged with institutional culture.

Finally, the last two years have demonstrated a closer link between innovation and collective responsibility. Initiatives in education and media literacy promote a more critical attitude towards information, greater sensitivity to manipulation, and clearer expectations that institutions should provide inclusive access (for internally displaced students, students with special educational needs, and other vulnerable groups). In general, the changes can be summarised as a shift towards a mindset characterised by adaptive learning and technological confidence, resilience and awareness of the importance of mental health as socially accepted norms, the strengthening of identity through digital cultural continuity, and civic solidarity expressed through participation in educational and cultural ecosystems.

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