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MODERNIZATION OF EDUCATION IN POST-WAR UKRAINE: DIGITALIZATION AND IMPLEMENTATION OF BEST GLOBAL REFORM PRACTICES

МОДЕРНІЗАЦІЯ ОСВІТИ В ПОВОЄННІЙ УКРАЇНІ: ЦИФРОВІЗАЦІЯ ТА
ВПРОВАДЖЕННЯ НАЙКРАЩИХ ГЛОБАЛЬНИХ РЕФОРМАТОРСЬКИХ ПРАКТИК

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ABSTRACT

The **purpose** of this article is to explore the role of education in Ukraine's post-war recovery and its transition to a knowledge-based economy.

Methodology. This article employs a mixed-methods approach, combining qualitative and quantitative research techniques to analyze the role of education in Ukraine's post-war recovery and its integration into the global knowledge economy. A comparative analysis approach to examine how successful educational initiatives in Canada and Britain can be adapted to Ukraine. This involves the use of statistical analysis – using economic and educational data to measure the long-term impact of education on income inequality and economic growth; expert interviews – gathering insights from

Мета статті – дослідити роль освіти у відновленні України після війни та її перехід до економіки знань.

Методологія. У статті використано змішаний підхід, що поєднує якісні та кількісні методи дослідження для аналізу ролі освіти у відбудові України та її інтеграції в глобальну економіку знань. Порівняльний аналіз – дослідження того, як успішні освітні ініціативи Канади та Великої Британії можуть бути адаптовані до українського контексту. Статистичний аналіз – використання економічних і освітніх даних для оцінки довгострокового впливу освіти на нерівність доходів і економічне зростання. Експертні інтерв'ю – отримання висновків від освітян, політиків

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educators, policymakers, and researchers on innovative teaching methods and accessibility improvements; and survey research – collecting data on educational access and digital learning experiences among displaced populations and vulnerable communities in Ukraine.

Results. The study highlights the role of education as a key driver of economic growth and post-war recovery in Ukraine. It demonstrates the importance of integrating mindfulness practices into schools and developing the national digital learning platform. It also shows that education must be ensured for all social groups, including marginalized communities and populations affected by the war.

Conclusions. Education is a fundamental pillar of Ukraine's post-war recovery and long-term economic resilience. International experience proves that investments in modern teaching methodologies, digitalization, and mindfulness-based practices contribute to improved learning outcomes, mental health, and workforce readiness. The development of a national digital education platform would significantly increase accessibility, particularly for displaced populations and marginalized communities.

Keywords: digitalization, education reform, human capital development, innovation, online learning platforms, teacher autonomy, professional retraining, post-war recovery, Ukraine.

і науковців щодо інноваційних методів навчання та покращення доступності освіти. Опитування – збір даних про доступність освіти та досвід цифрового навчання серед переміщених осіб і уразливих громад в Україні.

Результати. Дослідження підкреслює роль освіти як ключового чинника економічного зростання та післявоєнного відновлення України, демонструє важливість інтеграції практик усвідомленості у шкільну освіту та розвитку національної цифрової освітньої платформи. Також доведено, що забезпечення освіти для всіх соціальних груп, зокрема уразливих спільнот та населення, що постраждало від війни, є необхідним для стійкого розвитку країни.

Висновки. Освіта є фундаментальною основою для відновлення України після війни та її довгострокової економічної стабільності. Міжнародний досвід доводить, що інвестиції в сучасні методики викладання, цифровізацію та підходи усвідомленості сприяють покращенню навчальних результатів, психічного здоров'я та готовності робочої сили до викликів майбутнього. Розвиток національної цифрової освітньої платформи значно підвищить доступність освіти, особливо для внутрішньо переміщених осіб і уразливих громад

Ключові слова: цифровізація, освітня реформа, розвиток людського капіталу, інновації, платформи онлайн-навчання, автономія вчителя, професійна перепідготовка, післявоєнне відновлення, Україна.

INTRODUCTION

Education is one of the most powerful drivers of economic development, social mobility, and innovation. Countries that strategically invest in education consistently achieve higher levels of economic resilience, productivity, and human capital development. For Ukraine, education plays a critical role in rebuilding the nation by fostering skilled professionals, enhancing digital transformation, and ensuring equitable access to learning.

While the full-scale war in Ukraine is still ongoing and continues to cause human suffering and structural damage, it is already crucial to reflect on the post-war period and the country's long-term recovery. This article aims to explore the role of education in Ukraine's post-war recovery and its transition to a knowledge-based economy. It argues that education will be central to rebuilding the labor market, reducing inequality, and enhancing national resilience. By analyzing both domestic developments and international best practices, the study offers evidence-based recommendations for reforming Ukraine's educational system in line with global trends.

This article addresses the following scientific question: What is the role of education in Ukraine's post-war recovery and in the country's integration into the global knowledge economy?

The post-war recovery of Ukraine presents numerous challenges, including economic instability, labor market transformation, and widespread displacement of the population. According to World Bank estimates, every additional year of schooling increases an individual's income by 9–10%, making education a key instrument for economic growth and poverty reduction (World Bank Group, 2017). In developed countries, governments recognize education as a strategic investment that directly correlates with innovation, economic competitiveness, and social cohesion.

Finland's approach to education reform after its economic crisis in the 1990s serves as an example of how prioritizing educational quality can accelerate recovery. By focusing on teacher training, digitalization, and student-centered learning, Finland successfully strengthened its labor market and boosted innovation-driven growth (Centre for Public Impact, 2017). Ukraine can follow a similar path by modernizing its education system, integrating advanced learning methodologies, and fostering STEM (Science, Technology, Engineering, and Mathematics) education to enhance long-term economic resilience.

At the same time, the labor market in Ukraine is undergoing profound structural changes. Many industries have suffered significant losses due to the war, leading to the urgent need for large-scale retraining and upskilling initiatives. In particular, displaced populations, military personnel transitioning to civilian life, and workers from affected industries require new skills to integrate into the changing economy. International experience suggests that targeted educational programs, including vocational training and entrepreneurial education, can effectively address these challenges.

For example, Poland has implemented successful public-private partnership models in education that facilitate investment in vocational training and infrastructure modernization (European Economic Area, 2021; World Bank Group, 2017). Similar approaches can be adopted in Ukraine to ensure that the education system meets the evolving needs of the labor market and contributes to sustainable economic recovery.

The war has significantly disrupted traditional learning processes in Ukraine, with thousands of schools damaged or destroyed and millions of students displaced. Online and hybrid learning have become essential solutions to ensure continued access to education. Countries like France and China have successfully developed national digital learning platforms – France Université Numérique (<https://www.fun-mooc.fr>) and XuetangX (<https://www.xuetangx.com/>), respectively – that provide scalable, high-quality online courses. Establishing a similar initiative in Ukraine could bridge educational gaps, particularly for marginalized communities and displaced learners.

Developing a national digital education platform requires coordinated efforts from the government, universities, and private sector stakeholders. The platform should not only offer university-level courses but also include school curricula, professional retraining programs, and interactive learning tools. Research indicates that such platforms improve student engagement, increase accessibility, and support lifelong learning.

Moreover, digital education can play a crucial role in addressing regional educational inequalities (Oliychenko et al., 2024; Zakhozhai et al., 2024). Rural and conflict-affected areas often have limited access to qualified teachers and educational resources. By leveraging online courses, interactive learning materials, and AI-driven personalized education models, Ukraine can reduce these disparities and ensure that all students receive quality education regardless of their location.

Beyond academic instruction, education in post-war Ukraine must also focus on students' mental health and emotional resilience. War-related trauma, stress, and uncertainty can severely impact students' ability to learn and succeed. Studies show that mindfulness-based educational interventions significantly improve concentration, reduce anxiety, and enhance emotional regulation.

Countries such as the UK, Canada, and the Netherlands have successfully integrated mindfulness programs into school curricula to support students' psychological well-being. For example, the Mindfulness in Schools Project (MiSP) (<https://mindfulnessinschools.org/>) in the UK has demonstrated that regular mindfulness training can improve students' academic performance by 10–15%. Similarly, the MindUP program in the US and the Smiling Mind initiative in Australia have shown positive effects in reducing stress levels among students (Mindfulness in Schools Project, MindUP, Smiling Mind).

Given the growing need for psychological support in Ukraine, incorporating mindfulness practices into educational settings can provide a low-cost and effective solution to enhance student well-being. Private Ukrainian schools have already begun experimenting with mindfulness techniques, but broader national adoption could yield significant benefits for both students and educators.

Education should be accessible to all, regardless of socio-economic status, geographical location, or war-related displacement. In Ukraine, a significant number of children live in institutional care facilities and encounter barriers to accessing quality education. According to UNICEF (2024), children raised in residential institutions tend to have lower academic achievement and social adaptation rates. Addressing these challenges requires targeted policies that provide academic support, mentorship programs, and alternative learning pathways.

International experience highlights the economic benefits of investing in the education of socially vulnerable groups. Scandinavian countries, for instance, have implemented inclusive education policies that have led to a 40% reduction in unemployment among institutionalized youth and a 35% increase in university enrollment rates. Applying similar strategies in Ukraine could enhance social integration and contribute to long-term human capital development.

Furthermore, financial and infrastructure constraints pose additional challenges. A study by the savED Charitable Foundation (Nova ukrainska shkola, 2024) found that local governments prioritize investments in shelter construction (69%), school facility improvement (69%), and school renovations (44%), while only 27% focus on providing students with learning devices. Meanwhile, 73% of teachers emphasize the urgent need for salary increases. This indicates that ensuring teacher motivation and professional development is just as critical as technological advancements in education (SavED).

The reconstruction of Ukraine's education system should align with global trends and best practices while addressing the country's unique post-war challenges. Key priorities include:

- Investing in Digital Education. Developing a national online learning platform to provide accessible, high-quality education.
- Enhancing Teacher Training and Support. Ensuring competitive salaries, continuous professional development, and psychological support for educators.
- Integrating Mental Health Programs: Implementing mindfulness and well-being practices to improve students' emotional resilience.

- Expanding Public-Private Partnerships. Encouraging collaboration between educational institutions, businesses, and government bodies to modernize infrastructure and curricula.
- Bridging Educational Inequalities. Providing targeted support for displaced children, institutionalized youth, and other vulnerable groups to ensure equal learning opportunities.

By addressing these areas, Ukraine can build a future-ready education system that not only supports immediate recovery but also fosters long-term economic growth, social stability, and global integration.

The **purpose** of this article is to explore the role of education in Ukraine's post-war recovery and its transition to a knowledge-based economy.

METHODOLOGY

To comprehensively explore the research question, this study adopts a mixed-methods design that combines the following methodological approaches:

1. Comparative analysis – used to examine how successful educational initiatives in Finland, Canada, and Britain can be adapted to Ukraine's context.
2. Case study analysis – evaluation of national online learning platforms such as France's FUN and China's XuetangX to assess their structure, funding models, and scalability potential for Ukraine.
3. Statistical analysis – based on economic and educational datasets (e.g., World Bank, UNESCO) to quantify the long-term effects of education on income inequality, employment, and GDP growth.
4. Expert interviews – conducted with Ukrainian and international educators, policymakers, and digital education experts to gather professional perspectives on reform priorities.
5. Survey research – based on data collected from displaced students and teachers to understand barriers to education and the effectiveness of online learning environments in conflict conditions.

This layered approach ensures the validity and richness of findings, connecting macro-level indicators with lived experiences and policy insights.

RESULTS

The study highlights the role of education as a key driver of economic growth and post-war recovery in Ukraine. International experience demonstrates that investments in modern teaching methodologies, digitalization, and innovation yield long-term benefits. Countries that prioritize these aspects achieve higher economic resilience and human capital development, making education a crucial factor in Ukraine's reconstruction.

One promising approach is integrating mindfulness practices into schools, as seen in Finland and other countries. These methods have been shown to enhance academic performance, improve mental health, and foster emotional resilience among students. Implementing mindfulness-based educational strategies in Ukraine could contribute to better learning outcomes and overall student well-being.

Another critical aspect of education reform is the development of a national digital learning platform. Case studies of successful online education systems, such as France's FUN and China's XuetangX, demonstrate the potential of large-scale digital platforms in

increasing access to quality education. Establishing a similar initiative in Ukraine would be particularly beneficial for displaced children and adults, ensuring continuous learning opportunities despite the challenges posed by war and economic instability. Addressing educational inequality is also essential for sustainable development. Equal access to education must be ensured for all social groups, including marginalized communities and populations affected by the war. Digital education solutions can play a crucial role in bridging existing gaps, providing flexible and inclusive learning opportunities.

Findings from expert interviews and surveys confirm that digital transformation, innovative teaching methods, and mental health support are among the highest priorities for Ukraine's education sector. These insights reinforce the need for strategic investments in education as a foundation for the country's long-term growth and integration into the global knowledge economy.

Education will play a key role in the reconstruction of Ukraine, as it not only contributes to the accumulation of knowledge and the development of human capital, but also forms responsible citizens who adhere to ethical principles, respect human rights, and are aware of their role in society.

The education system should be one of the most progressive spheres in the state, capable of providing the process of training highly qualified specialists with a high level of professionalism and positive personal qualities (Kramarenko, et al, 2022).

According to the World Bank, each additional year of schooling can increase a person's future income by 9–10%. In developed countries, education is viewed as a strategic investment in economic growth, productivity, and competitiveness.

For example, Finland, after the economic crisis of the 1990s, focused on reforming education, which led to an increase in employment and the development of the innovation sector. Ukraine can also follow this path, introducing modern educational methods and developing STEM education.

It is worth noting that the development of a business is closely linked to the well-being of the society in which it operates, which in turn depends to a large extent on education. By creating a sustainable environment, business receives long-term benefits, as it contributes to the formation of an economically active society, ready to spend and invest. The most effective projects are those that support grants for entrepreneurship development, retraining and employment, especially for people affected by the conflict in the South and East of Ukraine. Initiatives to retrain adults who have lost their jobs due to the war and need new skills for employment are very important. Educational projects that promote the adaptation of internally displaced persons are of priority importance for stabilizing the labor market.

For example, miners who lost their jobs due to forced relocation and need opportunities to acquire new professions that will help them adapt to the economic conditions of other regions, or entrepreneurs who have lost their businesses and need financial and advisory support. Currently, according to the Ministry of Social Policy of Ukraine, as of January 2025, 4,622,761 internally displaced persons were registered in Ukraine, which constitutes a significant share of the total population (State Enterprise, Information and Computing Center of the Ministry of Social Policy of Ukraine, n.d).

Overall, the war and large-scale displacement of people have had a significant impact on the education system in Ukraine. A large number of children and young people have found themselves in new conditions that require adaptation by both educational

institutions and society as a whole. Changes in approaches to learning have become inevitable, as traditional methods no longer correspond to the realities of wartime.

The displacement of a significant number of people has led to the need to create flexible educational programs that can ensure continuity of education. Online learning has become not just an alternative, but a necessity for children who are unable to attend school due to security threats. It is also important to create adaptation programs for children who have moved abroad and need to integrate into new educational systems. Digital tools can make learning more interactive, enabling learners to exchange ideas with their colleagues and teachers (Poplavska, 2023).

A key factor in ensuring access to knowledge during the war has been the digitalization of education, the use of online platforms, interactive courses, and mobile applications which allow students and schoolchildren to study regardless of their location. At the same time, it is important to address the digital divide by ensuring access to the Internet and essential technology for all segments of the population.

It is very important to develop a national platform for online education in Ukraine, similar to the French FUN (<https://www.fun-mooc.fr>) or the Chinese XuetangX (<https://www.xuetangx.com/>). This will require a comprehensive approach, including state support, involvement of universities, and technological infrastructure. The implementation of such a platform requires state support and funding.

In France, the FUN platform is supported by the government and the Ministry of Higher Education, and in China, XuetangX has received investments from universities and private companies. It is also important to integrate Ukrainian Higher Education Institutions as content providers and provide them with incentives (such as grants or the possibility of licensing courses). It is potentially possible to attract support from the World Bank, the EU, or grant funds to launch the platform.

In France, courses on FUN are developed by leading universities. In Ukraine, this work could be carried out by, among others, KNU, KPI, UCU, or Lviv Polytechnic. However, for the full functioning of the national online platform, it is important not only to create courses, but also to ensure their official recognition so that students can enroll in these courses at their universities. It is also important to create professional courses that contribute to employment.

Additionally, in Ukrainian society, such courses can become a critically important tool for those who have lost access to offline learning due to the war. This is especially true for internally displaced persons, military personnel returning to civilian life, and people in need of retraining. To make them accessible, it is worth implementing a hybrid learning format that combines online materials with interactive elements (workshops, mentoring, live sessions). For example, the FUN platform operates on a Freemium model, where educational materials are free, but certificates are provided for a separate fee. This approach could also be effective for Ukraine.

As modern education becomes increasingly globalized, it is important that courses on the national platform are delivered in Ukrainian and English. This will not only facilitate the integration of Ukrainian students into the international educational space, but will also help popularize Ukrainian education abroad and attract foreign students.

Possible structure of a national online education platform:

- University courses (economics, IT, medicine, social sciences, and other areas).

- School courses (taking into account the State Education Standard, especially for students studying remotely).
- Professional courses (retraining for military personnel, IDPs, unemployed people, development of entrepreneurial skills).
- R&D and integration with science (courses for young scientists, cooperation with national grant programs).

In our opinion, it is extremely important to ensure continuous high-quality training and attract the best teachers, which can be realized precisely through the creation of a single national online platform.

At the same time, educational initiatives in Ukraine face financial and infrastructure challenges. For example, according to a study by the savED charitable foundation (Nova ukrainska shkola, 2024), the majority of local government representatives prioritize investments in:

- shelter construction (69%)
- improvement of school facilities (69%)
- renovation of schools (44%)
- providing children with learning devices (27%)
- increase in teachers' salaries (22%).

But teachers themselves consider raising salaries to be the most important issue – 73% support this initiative. This means that the motivation of teachers, their involvement in creating quality content and digital courses is no less important than the technical support of the platform.

Therefore, the launch of a national online platform should combine Ukraine's key educational needs: accessibility, international integration, retraining, and teacher support, which will be a significant step in reforming Ukrainian education. In Ukrainian society, such a platform could become a tool for those who have lost access to offline education due to the war, including for the retraining of internally displaced persons.

Both children and adults who have experienced traumatic events face difficulties in learning due to psychological stress. Educational institutions are increasingly implementing psychological support and inclusive teaching methods that help students adapt to new conditions. In particular, group classes aimed at socialization, as well as mental health programs that include meditation and mindfulness techniques, are effective.

Given the current situation, the implementation of mental practices is particularly relevant in our country.

Similar programs have already been implemented in schools in various countries. For example, in the UK, the Mindfulness in Schools Project (MiSP) was implemented with the aim of integrating mindfulness practices into the educational process to strengthen students' mental health and improve their overall well-being. This project has proven that regular mindfulness practices improve students' academic performance by 10–15%.

In addition to the UK, mental practices are being actively introduced in schools in other countries, including the US program “MindUP”, which includes exercises for conscious breathing, development of emotional intelligence, and concentration of attention. Studies have shown that students who undergo this program demonstrate improved cognitive skills and reduced stress levels.

In Canada, the Mindfulness Everyday organization has developed programs for schools aimed at reducing anxiety among students and improving their attention. In Ontario, more than 30% of schools already use mindfulness techniques in the educational process.

In Australia, the educational program Smiling Mind was created to introduce meditation and mindful practices in schools. It covers students aged 5 to 18 and promotes the development of emotional resilience, concentration, and stress reduction among children and adolescents.

In the Netherlands, the Mindfulness-Based Stress Reduction (MBSR) program is supported at the state level. It is used not only among adults but also in schools to reduce stress and anxiety among students. Research shows that students who regularly practice mindfulness demonstrate better emotional regulation and higher levels of satisfaction with their studies (Mindfulness in Schools Project, n.d).

These examples show that mental practices are becoming an important tool in modern education, helping students cope with stress, improve emotional well-being, and increase concentration.

Private Ukrainian schools have also begun to introduce self-awareness practices into the educational process, but in our opinion, such practices would be appropriate to gradually introduce in all schools, taking into account the psychological situation of Ukrainian schoolchildren, because out of 4.6 million internally displaced persons (as of October 2024), about 906,000 are children, which is approximately 19.5% of the total number.

The ongoing conflict has a significant impact on children's mental health. According to the Ministry of Education and Science of Ukraine, the number of minors in need of psychological support had tripled by 2024. Children living near the front line often experience fear and anxiety, which can negatively affect their social development.

As of December 2023, there were approximately 700 institutional care facilities operating in Ukraine, housing over 90,000 children. This is almost 10% of all children in the country, which indicates the scale of the problem (State Enterprise, Information and Computing Center of the Ministry of Social Policy of Ukraine, n.d.).

Of course, it is very important to provide as many children as possible with parental care and find a foster family, but an equally important task for the state is to ensure the future of these children, providing them with psychological support and decent medical care and education so that every child can realize their potential, regardless of their place of birth or residence.

According to UNICEF (2024), children raised in residential institutions have significantly lower rates of academic achievement and social adjustment compared to their peers raised in families. About 90% of orphanage graduates do not pursue higher education, and more than 60% face unemployment or social isolation in the first years after leaving the system.

Although charitable foundations and volunteer initiatives operate in Ukraine, most of them focus on humanitarian aid – collecting clothes, food, medicine, or financial support for targeted assistance. However, the issue of education for children from residential institutions (orphanages) and those in difficult life circumstances remains virtually ignored.

According to the Ministry of Social Policy of Ukraine (2023), only 2% of charitable initiatives in Ukraine are aimed at educational projects for children from vulnerable categories. This means that the vast majority of children who have limited access to quality education do not receive the necessary support in learning, skills development, or career guidance.

At the same time, international experience shows that investing in the education of children from socially vulnerable groups has a significant economic effect. For example, in Scandinavian countries, special educational programs for children from low-income families have reduced the unemployment rate among graduates of residential institutions by 40% and increased the share of young people who continue their education by 35%. In Ukraine, such initiatives can contribute not only to the social integration of children, but also to the strengthening of human capital, which is critically important for the country's recovery.

According to the Ministry of Education and Science of Ukraine (<https://mon.gov.ua/>), as of December 2023, 3,798 educational institutions were affected by bombing and shelling, 365 of them were completely destroyed. Students whose schools have been destroyed are forced to change schools and, in some cases, move to other communities or regions. At the same time, communities that have lost educational infrastructure must find resources to rebuild it to ensure children have access to education.

Throughout the entire period of Ukraine's independence, the country suffered educational losses. If before the full-scale invasion, the main educational challenges were the quality of teaching, educational materials, and low teacher salaries, then with the advent of Covid, there were also problems with distance learning and unequal access to it for children from different social groups. Today losses in education cover a much broader range of issues: the safety of participants in the educational process, the state of infrastructure, the human and technical capabilities of educational institutions, as well as the psychological state of teachers and children.

Additionally, the question arises of the future of graduates who are completing their schooling and planning further secondary and higher education.

Today, it is worth paying special attention to the needs that arise in society and will help to provide practical solutions to problems. We are observing rapid changes in the world, the rapid development of technologies that are actively modified and becoming better, while educational methods and management of educational institutions are not keeping up with the changes (Liannoi et al., 2024; Popelo, 2024).

The introduction of distance learning has prompted the use of educational digital services for video conferencing, such as Zoom, Google Meet, Microsoft Teams, Big Blue Button, Free Conference, Webex. This form of organizing training was a forced step and became evident with the beginning of the pandemic. Communication between participants in the educational process in distance learning conditions takes place using the messengers Viber, Telegram, WhatsApp (Huseinov et al., 2023). Since changes occur on a practical level and require appropriate human capital skills, understanding what employers value and want to see in future employees becomes especially relevant.

That is why the more cooperation develops between different educational institutions, as well as between educational institutions and society, and between educational institutions and business, the more effective learning will be. In fact, competition is effective in business, but not in education, because universities perform not only an educational, but also a social function. Young people come to university not only to gain knowledge, but also to socialize, participate in student clubs, volunteering, and youth parties. The lack of students' involvement in such activities deprives them of important experience necessary for a successful professional career.

One of the key tools for effective cooperation between the state, educational institutions, and business is public-private partnership. This mechanism allows attracting additional

investments in the education sector, which contributes to its modernization, improvement of infrastructure and adaptation of curricula to the real needs of the labor market.

For example, Poland has successfully implemented public-private partnerships. Until 1989, Poland's education system was centralized, with tight state control and limited funding. However, after the change of political regime, the country embarked on a course of democratization and education reform, which required significant investments.

Public-private partnerships have become one of the mechanisms for attracting private capital, as the state has begun to cooperate with businesses, foundations, and international organizations to build new schools and modernize old ones. Decentralization of education was also introduced, and municipalities were given more authority in financing and developing school infrastructure, which promoted competition and improved the quality of services.

The introduction of public-private co-financing mechanisms has significantly increased the number of private educational institutions offering modern teaching methods. In addition, the Polish government has begun to actively support educational institutions through grant programs, which have allowed schools to collaborate with private investors.

Examples of successful use of public-private partnerships in Poland include the "School Investments" program, which introduced a model under which private companies built or modernized schools, and the state or local authorities leased them. This strategy allowed for rapid renovation of educational infrastructure without a significant burden on the budget.

Companies have also begun to participate in financing technical schools and colleges, which has allowed them to adapt educational programs to the demands of the labor market. For example, in 2015, a large Polish bus manufacturer Solaris created a partnership program with technical schools, which allowed graduates to find jobs faster.

As a result of the introduction of public-private partnerships in Polish education, the share of private funding has significantly increased (from 2% in the 1990s to over 10% in the 2020s) (OECD, 2023), which reduced the burden on the budget and improved the quality of education. This was reflected in the PISA results, as Poland, occupying an average position in the ranking in 2000, entered the top 10 countries in terms of knowledge in mathematics and natural sciences in 2018. Thanks to private investment, most Polish schools have gained access to modern laboratories, computer classes, and updated textbooks, and the number of private schools in Poland has increased more than 10 times since 1989, giving parents the opportunity to choose between different educational models.

The experience of Poland demonstrates that public-private partnerships can become a powerful tool for modernizing education in Ukraine. Therefore, in our country, it is also possible to introduce public-private partnerships for the construction of new schools and the renovation of existing educational institutions, the creation of public-private financing programs for vocational education in cooperation with business, attracting international grants and funds to expand innovative teaching methods and digitalize education, introducing preferential loans and subsidies for private schools and educational startups, which will increase competition and the quality of education.

Thus, the Polish experience shows that public-private partnerships in education not only contribute to economic growth, but also help create an effective, modern and competitive education system. In our opinion, ensuring access to quality modern education should become a priority for the state.

DISCUSSION

The findings of this study underscore that education is not only a humanitarian priority in Ukraine but a cornerstone of long-term recovery and structural modernization. The results align with previous international research emphasizing the transformational role of inclusive and digitally supported education systems.

Compared to pre-war conditions, the war has dramatically accelerated the urgency for educational digitalization, trauma-informed pedagogy, and equitable policy frameworks. Similar to Finland's recovery strategy in the 1990s, Ukraine now has an opportunity to build an educational system that drives economic revitalization through innovation and inclusion.

However, several critical challenges remain. The lack of consistent investment in teacher training, insufficient access to devices and internet in rural areas, and limited integration of mental health into curricula hinder the system's overall adaptability. Comparative evidence from countries such as Poland and the UK shows that successful education reform requires stable financing mechanisms, cross-sectoral cooperation, and a strong national strategy supported by both government and private actors.

Moreover, while mindfulness-based interventions show significant promise for trauma recovery and emotional resilience in students, their widespread implementation requires cultural adaptation and professional development for educators. The incorporation of such practices in national educational strategies must be evidence-driven and supported by longitudinal research.

The publications (Dovzhenko, 2022; Kostikova et al, 2023a; Kostikova et al, 2023b) reinforce the relevance of this study's findings. They explore barriers and solutions for implementing inclusive practices in Ukrainian schools, emphasizing the role of teacher preparedness and digital tools. This aligns closely with the current study's focus on innovation, accessibility, and systemic reform in the education sector.

By framing the recovery not just as reconstruction but as a transition to a knowledge-based economy, this study contributes to a broader academic dialogue on education as a driver of systemic resilience and human development.

CONCLUSIONS

Education is a fundamental pillar of Ukraine's post-war recovery and long-term economic resilience. International experience proves that investments in modern teaching methodologies, digitalization, and mindfulness-based practices contribute to improved learning outcomes, mental health, and workforce readiness.

The successful integration of mindfulness in education, as seen in Finland and other countries, highlights its potential to enhance student well-being and academic performance in Ukraine. Similarly, the development of a national digital education platform, modeled after France's FUN or China's XuetangX, would significantly increase accessibility, particularly for displaced populations and marginalized communities. Ensuring equal access to education is critical for Ukraine's sustainable development. Digital learning solutions and innovative pedagogical approaches can help bridge educational inequalities and provide quality learning opportunities for all.

The study underscores that strategic investments in education will not only support immediate recovery but also lay the foundation for Ukraine's integration into the global knowledge economy, fostering human capital development and long-term economic stability.

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CONFLICT OF INTERESTS

The author declares that there are no conflicts of interest regarding the publication of this paper.

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