

# Learning during Crisis

Insights for Ukraine from across the Globe



# Foreword

Russia's war against Ukraine is, first and foremost, a human tragedy. As so often, children and youths are the centre of this tragedy. They are wearing the brunt of the consequences, witnessing the destruction of their homes, the loss of loved ones and the disruption of their education.

These children and youth are a modest percentage of Ukraine's population, but they are 100 percent of Ukraine's future. That is why educational continuity even amidst the destruction, and educational recovery as soon as conditions allow, is such a high priority.

Educators and the government of Ukraine are making every effort to maintain educational services during these times, but they are also beginning to reimagine education for a different future. One way in which the global community can help with this is by sharing experience with the rebuilding of education after major crises and disruptions.

That is the purpose of this publication. In this publication, countries participating in the OECD programme on the Future of Education and Skills (Education 2030) are offering a range of case studies for how they have tackled major challenges to education and transformed learning and schooling following significant disruptions.

Together, they present a range of policy ideas and examples of implementation that could be beneficial to Ukrainian educators and policymakers as they plan to not just sustain but transform learning, teaching and schooling in Ukraine.

The publication is part of broader efforts of the OECD to deepen and strengthen our co-operation with Ukraine, mobilising our expertise, analysis, data and membership to support Ukraine's agenda for reform, recovery and reconstruction.

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Educational environments provide a sense of security for children, where the provision of multi-dimensional support can play a crucial role in helping students with anxiety disorders and post-traumatic stress (Creed and Morpeth, 2014 <sup>[13]</sup> ). Drawing on the international examples, MoNE has developed a model that ensures that students are physically and psychologically protected, their access to education is ensured, and the quality of education is improved (see Figure 13.1).	262
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# Executive summary

The horrendous impact of Russia's full-scale invasion of Ukraine continues to unfold, with the repercussions of the conflict reverberating across the world. One of the consequences has been the systematic destruction of Ukraine's education system. Every day, civilians must overcome the challenges of war: shelling, air raid warnings, power blackouts and much more. Hundreds of schools have been destroyed, with teachers, students and parents killed due to Russia's military aggression. The education of millions of children has been interrupted and the continuity of teaching and learning continues to be a struggle.

This publication aims to support Ukrainian policymakers in the twin challenge of ensuring high-quality education can continue and to aid the remodelling of an education system that is fit for the future. As part of the OECD's Global Forum on the Future of Education and Skills 2030 project, it offers a collection of case studies from across the world that outline how policymakers have tackled major challenges to schooling and reimagined education systems. Combined, they present a range of policy ideas and examples of implementation that could be beneficial to Ukrainian policymakers as they plan strategies and reforms to revitalise their schools, teaching practices and re-think student well-being.

Chapter 2, written by the former Ukrainian Education and Science Minister Liliia Hrynevych, outlines the current state of the education system in Ukraine, the extensive challenges it faces because of the war, and current and planned reforms to improve teaching and learning across the country. Taking onboard the examples of the case studies in this publication, the chapter considers the ideas and policies that could be beneficial to Ukraine's context. Ukraine is already engaged in revitalising its education system via the New Ukrainian School reform programme and is drawing on the experiences of other countries to identify key policies that can be customised to help reverse the negative impacts of the war and benefit a post-war Ukraine.

Chapter 3 explores a series of ambitious reforms launched in 2015 in the city state of Delhi (India) to address the low levels of educational achievement amongst young people. It discusses the introduction of three innovative new curricula focused on fostering well-being, innovation and national pride in students, as well as accompanying infrastructural changes. Moreover, the case study describes the importance of decentralising education management, empowering frontline staff and encouraging collaboration with external partners.

Chapter 4 focuses on Estonia and outlines the country's significant strides in transforming its education system since gaining independence in 1991, with an emphasis on using digital technology to enhance learning outcomes and improve educational access. Estonia's education system, which promotes creativity, innovation and flexibility, focuses on giving autonomy to schools and teachers, allowing them to develop their curricula within a set framework and tailor their teaching methods to meet the needs of individual students. The insights into how Estonia has used digital innovation and teacher training can benefit Ukraine's own push to further develop its education system.

Chapter 5 provides an example from Finland. The case study describes how it has extended the compulsory education age from 16- to 18-years-old in a bid to combat school drop-outs and interruptions

in education, and to promote social cohesion, social responsibility and citizenship. Prior to the reform, a significant proportion of young people opted not to continue with formal education. One government study estimated that some 15% of Finns in all age groups lack upper secondary education qualifications. Ukraine is taking similar measures to improve educational participation and attainment by transitioning to 12-years of compulsory education.

Chapter 6 is a case study from Ireland, exploring how the country developed a Wellbeing Policy Statement and Framework for Practice. This ambition framework describes how schools can best promote well-being through the provision of a whole-school, multi-component and preventative approach. By drawing on pre-existing networks and resources, developing a detailed implementation plan and fostering a collaborative approach to planning and execution, this chapter shows how Ireland has developed a holistic, evidence-based and comprehensive well-being framework for children and young people.

Chapter 7, the second case study from Ireland, describes how the country's curriculum was significantly shifted to reflect a focus on student-centred approaches to education. This aimed to create a more engaging and interactive learning experience by moving away from heavily content-oriented syllabuses. The Irish government has redesigned a part of its secondary curriculum, the "Junior Cycle", to focus on a modern, skills-based and student-centred approach. Ukraine can potentially use information from this chapter to aid the development of its educational content and assessments.

Chapter 8 from Japan discusses the Tohoku School Project, an innovative approach to educational reconstruction taken by the Japanese government in the aftermath of the 2011 triple tragedy. In the wake of this devastation, an innovative education framework was proposed, placing students at the centre and equipping them with the skills to become the leaders of the future. This case study follows the project from conception through to completion, detailing the successes, challenges and potential lessons to be learnt for similar projects in the future.

Chapter 9 covers a case study outlining the Green-Smart Schools initiative in Korea. This project aims to transform outdated school facilities into an eco-friendly learning environment to adapt both to the challenges of climate change, and the era of digital transformations. Despite being in its early phase, the project demonstrates a coherent trajectory established at its core, complemented by adaptable strategies at the grassroots level. This study offers a valuable illustration of a sustainable environment planning model that balances societal and ecological considerations with educational objectives.

Chapter 10 is a case study shared by the Canadian province of Manitoba which focuses on the importance of creating a more inclusive education system, with policymakers aiming to incorporate Indigenous perspectives, histories and cultures into the curriculum. An action plan aims to promote understanding, respect, and reconciliation between Indigenous and non-Indigenous communities. This reflects a commitment to acknowledge the truths of the past, promote inclusivity, and foster a more harmonious relationship between communities through education. A similar initiative could potentially be helpful in Ukraine, particularly for children who have studied in occupied territories.

Chapter 11 is a case study from Portugal. To overcome challenges such as grade repetition, school drop-out and deficiencies in social cohesion, Portuguese policymakers describe how they set out a vision of what young people are expected to achieve at the end of compulsory schooling. Named the *Students' Profile*, it aims to align policies, such as curriculum autonomy and the use of a variety of assessments, across different sectors, to address complex societal challenges effectively. Recognising the importance of a co-ordinated approach, the profile has become the touchstone document around which other related policies are re-framed or constructed. This initiative could aid Ukrainian policymakers as they aim to put students firmly at the centre of curriculum change policy and other initiatives in a bid to bring about tangible and lasting change.

Chapter 12 focuses on Sweden. The Swedish education system acknowledges that every student is unique and has diverse learning needs. Its case study describes an assessment programme that was

designed to ensure that Syrian refugee children, and others new to the Swedish school system, were placed in appropriate class groups. To achieve this, Sweden developed a toolkit for schools to ‘map’ students’ learning needs. This process identifies their language and experiences, specific subject knowledge and knowledge in core areas such as numeracy. A similar system could be beneficial to Ukraine to help identify the strengths and needs of children who have had many different experiences during the war.

Taken together, these case studies present clear insights into countries’ educational decision-making processes and how they communicate, execute, measure and adjust policy implementation to ensure successful outcomes. They provide examples of how to ensure that decisions about education systems translate into impactful, organisational change. Policy makers in Ukraine can analyse and potentially build on the lessons learnt from these examples to support educators as they operate under war conditions. This will hopefully create more positive teaching and learning environments in the future for children who, for too long, have been robbed of the stability and safety of a classroom due to Russia’s aggression.

## **2 The state of education in Ukraine and steps for future progress**

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This chapter, written by the former Ukrainian Education and Science Minister Liliia Hrynevych, outlines the current state of the education system in Ukraine, the extensive challenges it faces, and the current and planned reforms to improve teaching and learning across the country. Ukraine is already engaged in revitalising its education system via the “New Ukrainian School” reform programme and is drawing on the experiences of other countries to identify key policies that can be customised to help reverse the negative impacts of the war and benefit a post-war Ukraine.

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The full-scale Russian invasion of Ukraine in February 2022 has had a devastating impact on civilians with many families struggling to meet their most basic needs, including education for their children. As Russian forces continue to bomb and shell schools, injuring and killing civilians, a significant number of students do not have the opportunity to study properly. Many are suffering from stress and trauma, which makes learning even more difficult. Teachers too are struggling to cope, and the rebuilding of educational facilities will require significant resources.

In this context, the Ukrainian government has been engaged in ensuring the continuity of schooling for as many children as possible. It also plans to restart a reform process to further modernise and improve its education system despite Russia's war of aggression. The case studies in this book are a timely and helpful collection of innovations to schooling from across the world that can benefit Ukrainian policymakers contemplating educational changes.

In this chapter, Ukraine outlines its current situation, its plans for the future, and areas of related significance from the country case studies.

## Impact of the war on school education in Ukraine

August 2023, Russia's bombardment of Ukraine has damaged 3582 educational facilities, of which 341 have been completely destroyed (Ministry of Education and Science of Ukraine, 2023<sup>[1]</sup>). Almost half of them are secondary schools. In total, 10% of the country's educational infrastructure has been damaged by Russian shelling (Centre for Economic Strategy, 2023<sup>[2]</sup>).

At the same time, millions of people have been forcibly displaced both inside the country and to neighbouring countries. Almost 8 million Ukrainians have travelled abroad (Telegraf, 2023<sup>[3]</sup>); another 7 million are internally displaced (Slovo i Dilo, 2023<sup>[4]</sup>). As of December 2022, 516 243 students (13% of the total) and almost 11 000 teaching staff (3%) were living abroad (Ministry of Education and Science of Ukraine, 2022<sup>[5]</sup>).

Since the beginning of the conflict, 502 children have been killed and another 1100 children have been injured, according to confirmed data as of August 2023. Almost 20 000 children have been forcibly deported from temporarily occupied territories. A further 393 are considered missing (Children of war, 2023<sup>[6]</sup>). Unfortunately, due to active hostilities and the temporary occupation of part of Ukraine's territory, it is impossible to accurately state the full extent of the suffering.

Most parents (61%) note symptoms of trauma in their children. These include increased anxiety, sleep disturbances, memory deterioration, difficulties concentrating and less desire to communicate (CEDOS, SavED, 2023<sup>[7]</sup>). At the same time, more than half of teachers (54%) are experiencing professional burnout and need psychological support (GoGlobal, 2023<sup>[8]</sup>).

Even for students studying in relatively safe regions, conditions have deteriorated significantly. Due to frequent air raid alerts, lessons are often interrupted and shortened to enable students to take shelter. In the autumn and winter of 2022 and early 2023, there were frequent power outages due to missile attacks. A significant number of teachers and students had no internet connection to teach and study remotely. Children in regions close to the front line and in the occupied territories, where internet is available, only have access to remote learning. Those without a connection, cannot study with their teachers at all.

The Office of the Education Ombudsperson of Ukraine has analysed the impact of the war and identified seven distinct categories of student, each of whom faces specific educational challenges:

- students who found refuge abroad;
- students who permanently live far from the combat zone;
- students who found refuge in Ukraine (IDPs);

- students who live in de-occupied territories;
- students who have been forcibly deported to the territory of Russia or Belarus;
- students who permanently live close to or in the combat zone;
- students who are in the temporarily occupied territories (The Education Ombudsman of Ukraine, 2022<sup>[9]</sup>).

A priority of the Ukrainian government is to ensure that disruptions to students' learning are minimised as much as possible. A number of strategies have been used to ensure continuity of education to the greatest extent possible. One such strategy has been to leverage the expertise gained by teachers and students during the COVID-19 pandemic, when schools in Ukraine, as elsewhere, switched to working online. As a result, almost all teachers have mastered the necessary digital skills to conduct remote lessons.

This has helped the Ukrainian education system to adapt to the realities of war. As of 1 September 2022, 12 996 schools were operating in some form across Ukraine (CEDOS, SavED, 2023<sup>[7]</sup>) by dynamically applying three education models simultaneously. A third of schools were operating on a permanent remote basis (36%), another third mix remote and in-person learning (36%), and the remainder are solely face-to-face (28%), as of December 2022 (Ministry of Education and Science of Ukraine, 2022<sup>[5]</sup>).

As one would expect, educational facilities near the frontline are operating remotely while schools in relatively safe areas provide face-to-face instruction - if they have a bomb shelter that can accommodate all the school children. According to official statistics, by the 2022-23 academic year, shelters were equipped in 74.7% of educational facilities, giving them the opportunity to go back to face-to-face instruction (Cabinet of Ministers of Ukraine, 2020<sup>[10]</sup>). However, in large cities, particularly in Kyiv, many schools have more students than a shelter can accommodate. In such cases, institutions introduced hybrid learning and hot seating. For example, different classes took turns studying in-person at school each week. Primary schools, where possible, were prioritised as evidence shows that remote learning can most negatively impact the development of young children.

## Education changes in pre-war Ukraine

After gaining independence in 1991, Ukraine developed its own national education system. The country has shifted from a centralised post-Soviet education system to one based on the principles of child-centredness, democratisation and decentralisation. The Revolution of Dignity in 2014 was a powerful impetus for significant change in Ukraine. Civil society, the government and parliament made education policy a top priority. Following a three-year civic and political dialogue involving many stakeholders, a new foundational education law was adopted in 2017 that defined the ideological changes (The Verkhovna Rada of Ukraine, 2017<sup>[11]</sup>).

The "New Ukrainian School" (NUS) reform, which began the same year, was a response to demands for quality European education system with equal access for all. "The modern world is complex. It is not enough to only give knowledge to a child. It is also important to teach them how to use it. Knowledge and skills interconnected with a student's values form the competences required for success in life, studies and work," the reform concept paper stated (Ministry of Education and Science of Ukraine, 2016<sup>[12]</sup>).

The reform was gradually implemented in primary schools between 2017-21, which included targeted funding for teacher training and funds for classroom equipment (Re:Osvita, International Renaissance Foundation, 2022<sup>[13]</sup>). However, the impact of the Russian invasion left the education system facing enormous challenges and the reform programme in a critical state.

Ukraine is now ready to restart the reform process, taking into account the circumstances that have arisen during the war and the country's overall development strategy. The main goal is to ensure that all children in Ukraine have access to quality education, so that they can achieve success in their lives and become

active, united, resilient and responsible citizens able to contribute to the development of a European Ukraine. Drawing on the experiences of other countries, Ukraine has tried to identify key policies that could improve the quality of education, help reverse the negative impacts of the crisis, and be customised to Ukraine's unique set of circumstances, both during and after the war. This will ensure that Ukraine can implement best practices from across the world to overcome the extraordinary challenges its education system faces, as well as add new ideas or confirm current policy reforms.

## Areas of change to improve school education

Ukraine has identified a number of actions to revitalise the reform programme and ensure the ambition to continue to provide a high-quality education to all its students can be realised. This covers a wide range of areas, including policies to reduce education gaps, improve professional development opportunities for the teaching profession and the use of innovative digital technologies to support educational goals. Below is a summary of some of the main areas of reform that will be necessary to improve the education system.

### ***Overcoming losses and gaps in the education system***

Russia's full-scale invasion of Ukraine has negatively impacted education in many ways and led to the formation of new educational gaps between students who have had different experiences during the war. According to research, learning is an effective way to return to a sense of normality in the most abnormal situations, such as natural calamities, disasters, wars and other traumatic events for children (Le Brocque, 2016<sup>[14]</sup>). As a result of military operations in territories that are under the control of Ukraine, threatened with occupation, or have been recently de-occupied, it was necessary to apply a strategy to restore education. This followed the following three phases:

1. ensuring the protection of children's lives by evacuating them, urging them to stay in bomb shelters and safe places, and providing medical and psychosocial assistance;
2. restoring the education system through distance and hybrid learning, and, in cases where a school was destroyed, conducting classes in other premises, and arranging digital educational centres (Digital Learning Centres, DLC);
3. ensuring access to quality education, implementing the reform of the New Ukrainian School.

Such an approach is very similar to the management model implemented by Türkiye's Ministry of National Education after the catastrophic earthquake of February 06, 2023, which caused significant destruction and casualties in ten provinces, home to more than 13.5 million citizens. This is a three-stage model:

1. supporting search and rescue operations as well as providing humanitarian aid – providing premises to be used as shelters, producing food for victims, and allocating specialists for psychosocial support;
2. prioritising the return to education, during which temporary classrooms were constructed and classes were held in communal and public premises;
3. ensuring equality – access to education for all students, including children with special educational needs.

The Ministry has also created hospital classrooms to ensure access to education for students with illnesses or disabilities. And in Ukraine, the "School of Superheroes" in particular has developed as a non-governmental and later state initiative to hold school classes at hospitals.

During the initial stages of restoring education in Türkiye, the psychosocial support of students was a priority, and the transition to psychological and pedagogical support took place as schools reopened. Similar processes have been taking place in Ukrainian education since the beginning of the full-scale war.

The different ways OECD countries have compensated for educational losses and learning gaps linked to remote learning can be useful in this regard. Case studies in this publication, as well as the OECD paper, “Recovering lost learning opportunities in Ukraine: Key education policy strategies” (OECD, 2023<sup>[14]</sup>), identify key strategies for overcoming educational losses, for example by adapting teaching practices to students’ individual needs, adapting and extending learning time and other techniques.

In this regard, Ukraine can consider the allocation of additional teaching and learning hours for individuals and groups of students. The focus of the additional time should be stipulated in the curriculum and paid from budget funds. Summer schools, for example, may be a promising approach for children from combat zones and from de-occupied territories. Türkiye has a similar experience of free summer school programmes as part of overcoming educational losses after the earthquake. Assigning additional time allows for students to catch up on missed learning opportunities. Another useful approach is to develop an online tutoring platform, which could match students with a teacher, university student or even facilitate peer-to-peer learning.

The experience of Türkiye regarding mobile scientific centers established at disaster zones to study natural sciences and conduct practical experiments is interesting in terms of overcoming educational losses and gaps. Tents were set up to provide games and activities. Such centers can be useful in rural areas and territories of Ukraine which are sparsely populated as a result of hostilities. A network of DLCs is also developing in Ukraine, created by the SavEd charitable foundation with the support of foreign organisations, such as AWO International, Aktion Deutschland Hilft, Plan International, Crown Agents, Japan International Cooperation Agency (JICA), etc. (CEDOS, SavED, 2023<sup>[7]</sup>). Digital education centers that have shelters or are established within shelters are also properly set up with furniture and equipment to give lessons, and have everything necessary for children to relax and play.

The effectiveness of additional time is dependent on ensuring that the learning experiences offered are appropriately targeted. In effect, they need to address the specific learning needs of the students. Developing a diagnostic process which will identify those needs is a particularly urgent objective in Ukraine. The experiences of other countries can help provide guidance. The Swedish case study gives some useful insights into the development of diagnostic tools to identify the strengths and needs of students. It also points to the value of engaging local expertise in their development. The Ukrainian Center for Educational Quality Assessment, (UCEQA), has experience of conducting national monitoring and the external final assessment. As a result, UCEQA’s involvement in developing additional diagnostic materials is worth considering. A similar assessment test is already being developed, with primary diagnostic tests for the Ukrainian language and mathematics posted on the “Ukrainian School Online” resource.

Sweden also developed the concept of a “mapping” process which looks at students’ language and experiences, literacy and numeracy proficiency, and knowledge in specific subject discipline areas. The principal uses the findings to determine which class group a student should join, by also taking into consideration the student’s social maturity, previous school experience and health.

When developing similar procedures in Ukraine, it will be important to create appropriate tests and tasks that can assess core knowledge and competencies in the Ukrainian context. Conducting an interview with the student, as is done in Sweden, rather than relying solely on a written test, provides an additional source of information. Adopting this approach would enable educators to take into account educational gaps and students’ strengths and areas to improve. Sweden’s experience of “immersion” and “preparatory” classes is also helpful. This can be especially relevant for the support of children who have been studying in occupied territories under the Russian education system since 2014.

## **Updating the content of the curriculum**

### *Competency-based learning*

The "New Ukrainian School" (NUS) reform signalled a transition from a knowledge content focused curriculum to one which was competency-based. The outcomes achieved by Ukrainian students in PISA 2018, the first time Ukraine had participated, illustrated clearly the need for reform as 25.9% of Ukrainian teenagers failed to attain basic levels of literacy in reading, 36% in mathematics, and 26.4% in sciences – Ukraine's average scores were lower than the OECD average scores in all three domains (OECD, 2018<sup>[15]</sup>). The NUS reform set out to ensure that students would not only gain knowledge but also the range of competencies necessary to apply that knowledge in real-life situations. Knowledge and skills are linked to the student's value system, to form ten key competencies prescribed in the NUS. The reform built on the existing pedagogical practices in Ukraine and on best practice from the world's leading education systems. The list of competencies included in the curriculum is based on recommendations from the European Parliament and the Council of Europe (European Parliament, 2006<sup>[16]</sup>). In addition to competencies, NUS develops cross-cutting skills, in particular critical thinking, responsibility and other socio-emotional skills. The government adopted new State standards that define the expected learning outcomes for primary (2018) and basic (2020) schools, which have reflected mentioned NUS approaches.

Russia's war of aggression has impacted the progress of educational reforms. However, it is vital that the Ukrainian education system continues to implement a competence-based approach and to update educational content. In the context of the war, learning takes place under stressful conditions. Children need resilience, the capacity to regulate emotions, as well as other socio-emotional skills. The NUS reforms have been developed in line with state-of-the-art education trends, however the case studies shared in this book also highlight valuable insights into how education systems can be developed.

Since 2015, the Irish secondary education system has been implementing a new Junior Cycle Framework – the most significant school reform in that country in decades. In the curriculum, the emphasis shifted from subjects to focus on students' interests and needs. It identified the expected outcomes of lower secondary education in a set of 24 learning statements and eight key skills. The framework document details each skill, their elements and outcomes, and this enables teachers to integrate them into subject planning and classwork.

Meanwhile, in Portugal, policymakers have also focused education reform on competencies important for students' future lives. The Education Ministry introduced the "Students' Profile", which outlines both the principles and vision underpinning education provision, and the values and competency areas education should develop in students. It has become the touchstone for all relevant policies and decision-making, bringing coherence to multiple elements in the education reform programme in Portugal.

Thus, the experiences of countries that put the interests and needs of students at the forefront of educational changes resonate with reforms in Ukraine, which are based on child-centredness and the formation of core competencies and cross-cutting skills. Similarly, public standards for elementary and basic schooling are described in terms of learning outcomes rather than curriculum content components. Ukraine also has its student profile tool, developed in 2016, which can be improved drawing on international experience.

Ukraine can also use the experience of OECD countries to support its education sector reform agenda. In particular, it can draw on their experiences to support its own efforts to integrate a competency-based approach in various subjects and to identify teaching methods that avoid overloading students. The experience of Ireland is extremely interesting and relevant for Ukraine. As Ukraine further rolls-out reforms to cover high school and continues implementation of the new State Standard of Basic Education and the State Standard of High Specialised Academic and Vocational Education envisaged by the NUS reform,

Portugal's experience of designing differentiated pathways for students requiring additional support will also be of use.

### *Updating the content of subjects*

A challenge for education in post-war Ukraine will be integrating children from temporarily occupied territories. It will be necessary to develop an adapted curriculum in the Ukrainian language that can immerse them in various subjects. It will be important too to build flexibility into the curriculum so that it can be adapted to meet the needs of students who have had diverse experiences of disruption. For example, this will be important for children from temporarily occupied territories who did not study within the Ukrainian education system for a considerable period of time.

In post-war education, nation-building subjects will play an important role for all children. Subjects that are key to the development of Ukrainian identity and social cohesion, such as the Ukrainian language and literature, history and civic education, will need to be revised. Examples of the curriculum approaches taken in some of the case studies illustrate the possibilities.

Education in the state language - as well as deep knowledge of the native literature, history, and geography – are of particular importance in national school systems. In Sweden, the “Intensive Swedish” initiative was aimed at supporting high school students who had recently arrived in the country, with little to no Swedish language ability. Estonia, when transitioning to the national education system, introduced teaching in the Estonian language with an emphasis on the local history, geography, works by Estonian authors, and much more. \ Meanwhile, in Portugal, an essential element of the curriculum has been citizenship education, which is taught both in primary and secondary schools. The subject of “Citizenship and Development” includes studying topics such as gender equality, consumption culture, and intercultural relations. A new programme resulting from the reform in Delhi was Deshbhakti, or National Pride, which was introduced in 2021, from Kindergarten to Grade 12, to inculcate the values enshrined in the Indian constitution, including tolerance, brotherhood, collective belonging and participatory democracy.

Approaches to updating the content of education in Ukraine - in accordance with current needs and international experience - include enhancing science and mathematics education (STEM), and students’ command of foreign languages. School subjects in the areas of natural sciences and mathematics should not only provide knowledge and skills, but also develop the innovative competency required for Ukrainian youth to be competitive in local and global labour markets. Since Ukraine has set its course towards European and Euro-Atlantic integration, more attention should be paid to learning foreign languages by using communicative teaching methods and modern digital resources.

### *Developing socio-emotional skills and resilience*

The traumatic impact of the war on Ukrainian students means curriculum reform should include a focus on developing the life skills of resilience, emotional self-regulation, and empathy in order to ensure students’ well-being. One of the noted outcomes of the introduction of the NUS was the improvement of socio-emotional skills among primary school children (Linnik, Hrynevych and Staragina, 2022<sup>[17]</sup>). Ukraine is also already piloting a socio-emotional and ethical learning program (EdCamp Ukraine, 2019<sup>[18]</sup>). As this work continues, the case studies from Manitoba and Ireland underline the importance of attention to this area, as well as provide ideas for exploration in the Ukrainian context.

In Manitoba (Canada) the student-centred educational strategy aims to holistically support their mental health and well-being. *Mino-Pimatisiwin* or “the Good Life” is a concept shared by many First Nation peoples. It refers to living a well-balanced life and education that must address the development of the whole person, their emotional, physical, mental, and spiritual state. In Manitoba, a model of positive youth development was also formed - the “Circle of Courage”, which defines the four basic needs of children -

belonging, mastery, independence and generosity. This model emphasizes the importance of meeting the socio-emotional needs of children in implementing an inclusive, equal and quality education system.

As part of the education reform in Delhi, the quality of education was improved through the introduction of new curricula. Among them is the Happiness Curriculum, which is implemented from grades 1 through 8 and consists of daily 45-minute lessons. This curriculum aims to develop social and emotional skills, critical thinking, attention and reflection. It consists of three parts: exploring happiness through learning and awareness, experiencing happiness in relationships through feelings, and active participation. The key factor in the success of the Happiness Curriculum was its implementation with the help and support of partners and public organizations.

A report published by the Boston Consulting Group highlights that 87% of teachers believe that the school's Happiness curriculum has had a tangible impact on students (Boston Consultancy Group, 2021<sup>[20]</sup>). For some of the children who participated in this curriculum, the school closures due to the COVID-19 pandemic were not as stressful because of the mindfulness and resilience-building practices acquired while learning. The pandemic has drawn attention to the feasibility of including happiness practices and mindfulness in the curriculum and the consideration of well-being of students as a critical component of education.

Subsequently, in grades 9 through 12, the Happiness Curriculum is followed by the Entrepreneurship Mindset Curriculum. Its goal is to develop mindsets enabling students to be innovators, solve conflicts and create jobs. An important element of the curriculum was building bridges with local business, focusing on providing students with real-world experience to understand economic processes. Entrepreneurial thinking is also very relevant for Ukraine at the time of post-war reconstruction, and it corresponds to the learning outcomes for entrepreneurial and innovative key competencies defined in the State Education Standards. Using the example of the Delhi experience, we can see that the purposeful development of social and emotional skills and entrepreneurial competence is successfully taking place at the policy level through introducing targeted curricula.

Since 2015, the study of well-being has been defined as a separate educational area and subject in Ireland. For this, 300 hours were allocated in the basic school cycle. Various dimensions of well-being are considered, which relate to the ability to realise one's potential, resist life's stresses, care for one's health, both physical and mental, and find a sense of purpose, connectedness and belonging to a wider community. In addition, schools can add those aspects of well-being that they consider appropriate to the curriculum. The psychological and emotional needs of students have also become a priority in Türkiye in the course of creating post-disaster education models.

In Ukraine, it is necessary to implement a system for developing socio-emotional skills for all age groups of students, in particular, taking into account the traumatic impact of the war. On this point, the experience of other countries can be helpful in the design of curricula and models aimed at developing emotional intelligence, fostering a culture of diversity and respect for others. Thus, the experience of Delhi led to the conclusion that in the conditions of war and post-war reconstruction, taking into account the level of traumatization of Ukrainian society, especially to children and students, it will be appropriate to consider social-emotional education as a mandatory part of the educational process. Currently, it is only selectively implemented in Ukraine.

### *Developing educational and methodological support for new content and assessing students' educational achievements*

Successful reform of education systems internationally has been accompanied by dedicated attention to supporting teachers and students to adapt to new approaches and content. In many instances, this has taken the form of additional professional development for teachers, the development of digital resources and methodological guides for teachers, as well as textbooks for students. Particular attention is paid to

the evaluation of learning, both in the classroom and exams that determine the progress of students to further and higher education. The success of reforms in various countries had one thing in common: teachers and students were provided with well-developed educational and methodological materials before the introduction of new educational programs and curricula. In practically all the considered cases, manuals were developed for each curriculum, at the level of each class, in parallel with the introduction of educational reforms.

In many systems, a renewed focus on formative assessment has reflected the shift to a more student-centred curriculum approach. For example, reforms in Ireland involved rethinking the evaluation system so that all the learning achievements of students, not just their knowledge of subject content, could be recognised and celebrated. Thus, two components of evaluation emerged – ongoing, in-class evaluation of work completed in school time and a final exam at the end of a three-year learning cycle. The classroom-based assessments allow students to explore themes, conduct research and present their learning through a variety of formats, including for example dramatic presentation, speech, fieldwork reporting, portfolio development and, where the student chooses to, a traditional written paper.

In Portugal, implementing the *Students' Profile* requires teachers to adapt their pedagogical practice and, in 2018, a diverse use of assessment and evaluation instruments was encouraged in the guidance documents and legislation. Maintaining a focus on the student at the centre of assessment practice, Portugal requires teachers to carefully consider the purpose of any assessment and the particular curriculum component or objectives being measured. They should choose an assessment methodology which directly addresses that purpose. A teachers' guide to formative assessment is an important tool provided to teachers to support their assessment practice.

Formative assessment has also been introduced in Ukraine as part of its reform process. It aims to focus on where students succeed and where they need to improve. However, at present, an insufficient number of standardised assessment cards have been developed to fully reflect the expected wide range of students' knowledge and skills. While in primary school this problem has been largely resolved, it remains an issue in lower secondary school. There is also scope to use technology to support learning and evaluation. Specifically, digital gamified educational resources, especially in mathematics, can help motivate students to learn. Similarly, it is necessary to develop evaluation algorithms for competency-building in basic secondary education (grades 5-9) and specialised secondary education (grades 10-11 (12)).

### *Transition to 12-year general secondary education*

According to the Ukrainian Constitution, there are 11 years of compulsory school attendance for children and teenagers from age 6 to 17. The New Ukrainian School (NUS) reform envisages the gradual transition to 12 years of compulsory education (the first graduation would take place in 2030). However, there are still concerns about whether there will be enough resources to pay for the extra year of schooling. Ensuring adequate financing to support new educational policies is a challenge in any context. Without sufficient funding, the intention of reform is often compromised.

An important factor in the success of Estonia's educational reforms was financial support and the timely transition from a post-Soviet system to 12 years of national education. The experience in Finland is also worth noting, which in 2021 extended the period of compulsory education from 16 to 18. In both cases significant resources were needed, both human and financial. When developing the project to increase the duration of compulsory education, Finnish experts carefully analysed all financial costs. Given the evidence that keeping young people in school is strongly correlated with improved employment and income development opportunities, which in turn results in higher tax revenues and lower social security expenditure, financing the additional year can be considered a prudent investment. Having analysed other alternatives, such as provision of social assistance to youth, the government was convinced that extending the period of compulsory education would be the most beneficial and cost-effective.

As Ukraine implements an additional school year as part of the introduction of a new three-year high (senior) school of academic or professional direction, an emphasis on student guidance is needed to support young people to choose an appropriate educational pathway. This should include orientation on a broad range of professions, delivered by career consultants.

### ***Professional development of teachers and school principals***

Under the NUS reform plan, teachers play a key role as they directly implement the changes in schools. The case studies in this publication outline the importance of providing teachers with training so that they understand the purpose of a policy change and acquire the skills needed to support its implementation in the classroom. This meant changes to pre-service training, for example, in Estonia. During the transition from the Soviet education system to the national one, universities revised their curricula for future teachers to put an emphasis on students and their learning outcomes. In-service professional development opportunities were also provided for teachers, who decide how and what they need to learn. Similarly in Ireland, prior to approval of each new subject specification, in-service professional development courses and subject-based courses were organised for teachers. In Manitoba, educators were also supported to better understand and implement the new Indigenous education policy. In particular, teachers were provided with a wide range of external resources on the history, culture, and languages of Indigenous peoples.

Support for teachers is of paramount importance in post-disaster education recovery, as they are often the first point of contact for students, welcoming children and young people into a safe learning environment and helping them to meet their psychological and physiological needs (Özer, Şensoy and Suna, 2023<sup>[21]</sup>). Therefore, in Türkiye mass training was implemented for 1.2 million teachers, in particular through the Informatics Teachers Network (ÖBA), on various topics such as disaster management and post-disaster mental health, to strengthen their professional capacity and emotional resilience in supporting affected students. The Ministry has also provided teachers with temporary housing and transportation assistance to ensure quality education in a situation of significant challenges.

In some cases, countries have granted additional autonomy to teachers to enable them to design curricula tailored to the needs of their students. In Estonia and Portugal, teachers have the autonomy to independently choose teaching methods and techniques, and to adapt the curricula to achieve learning outcomes, after taking into account the specific learning needs within their classrooms. Estonian teachers select curriculum content according to students' needs and can flexibly integrate subjects. In Portugal, teachers are provided with guidance on how to select and combine methods and techniques for the development of children's competencies.

These experiences resonate with Ukraine. One of the important innovations of the new State Education Standards is the extensive pedagogical autonomy given to schools and teachers, who can independently develop and use various curricula to meet the standards. A new teacher professional standard has also been approved, which sets five general and 15 professional competencies necessary for the reform's implementation (Ministry of Economic Development, 2020<sup>[19]</sup>).

When considering the international experiences described in these case studies, it is clear that all successful educational changes have been accompanied by steps that support teachers and their professional development. Ireland, for example, promoted co-operation among teachers by allocating 22 hours in the school calendar each year for subject-oriented meetings, so teachers can develop a common understanding of standards, expectations, evaluation, and reflect on their experience. It helped to move from an "isolated school culture" towards a culture of communication and co-operation. Ireland also used experienced teachers, to develop programmes to support their colleagues across the country. In Sweden, the National Agency for Education worked with principals to help showcase the opportunities that reforms offered to teachers, as well as introducing them to materials about projects and initiatives.

During the implementation of the reform in Delhi, the leadership role of heads of school was further reinforced, and their transition from administrative tasks to leadership in the educational process was supported. For this purpose, they used the Cluster Leadership Development Program (CLDP), which helped school leaders understand the specifics of implementing new curricula. Under this model, groups of principals and managers from neighbouring schools meet monthly for peer-facilitated learning. Training educational leaders is particularly important in the Ukrainian reform of the National Academy of Sciences, while a targeted course for school principals specifically, peer learning, and the development of leadership skills is very important.

Also in Delhi, leading teachers and mentors, as well as teacher development coordinators and mentors, were involved in the implementation of the new Happiness Curriculum. They have been providing feedback for developers to act upon, increasing the level of trust in the new curricula. There was a four-stage model of support, which started with training the teachers implementing the Happiness Curriculum, followed by training coordinators and finally resulting in intensive training using the cascade model. This demonstrates the importance of teacher training, especially in the implementation of new curricula, which is now necessary for Ukrainian subject teachers of grades 5 through 9.

In Ukraine, professional growth is important for teachers and managers of educational facilities, who have to understand and implement reforms, and master teaching methods for competency development. In order to provide teachers with more opportunities for professional growth, Ukraine's government de-monopolised the professional development market in 2020. Previously, it was only offered by Institutes of Postgraduate Pedagogical Education. As a result of the de-monopolisation, lots of providers have appeared and competition has increased. In 2021, the EdWay National Platform for Professional Development of Pedagogical Workers was launched, where all interested providers can publish their offers (EdWay, n.d.[20]). For teachers, this is a convenient resource to find learning opportunities in various areas. Teachers can also now plan their own professional growth and combine courses from different providers. For this purpose, the government of Ukraine introduced a subvention that was paid to schools and then - based on the "money follows the teacher's preference" principle - transferred to professional development entities chosen by teachers.

As a result of the Russian invasion, progress in teacher professional development slowed significantly. This happened, in particular, due to curtailment of the targeted subventions. In order to move the reform forward, Ukrainian teachers and school principals are encouraged to make efforts to continue supporting learning opportunities and allow for professional development accordingly.

The experiences described in the case studies can be used to guide further expansion of reforms in Ukraine to cover basic and specialised secondary schools. The development of dedicated materials for principals and teachers to explain policy changes will also be necessary, as will the establishment of teams of subject consultants. Targeted professional development of teachers and school principals which encourages professional communication about new policy approaches, and which restores the approach of the "money follows the teacher's preference" principle, is necessary. A comprehensive support program should include educational and methodical support, high-quality modern textbooks, materials with the rationale for changes and reforms, as well as a single electronic platform where a teacher or school principal can access everything they need. It will also be necessary to take steps to improve the status of teaching and teachers. The remuneration paid to teachers in Ukraine is low and this has been exacerbated by the war, with certain teacher bonuses eliminated or reduced. On top of this, inflation-linked pay rises have not been paid. It is strategically important to attract and financially support both teachers already employed, as well as to develop a financial structure that appeals to young professionals.

### ***Creation of a safe and developmental educational environment***

In order for Ukraine's reforms to have a positive impact on the quality of education at primary schools, the government allocated targeted subventions. These aimed to improve teachers' qualifications and to update

the educational space. In particular, local communities received funds from the state budget for new primary school equipment. Founders of educational facilities bought classroom furniture which could be used flexibly to create learning spaces for students to collaborate in groups, as well as dynamic teaching aids, and multimedia equipment. Problem-solving and research-based learning equipment was also provided to primary schools, in particular, the integrated "I Explore the World" course. To create a developmental environment, the Ministry of Education and Science of Ukraine also collaborated with the international organisation "The LEGO Foundation", which provided sets of learning LEGO bricks to every Ukrainian school (Ministry of Education and Science of Ukraine, 2019<sup>[21]</sup>).

Ukraine has also focused on creating a barrier-free environment in schools attended by children with disabilities. As a result, barrier-free accessibility was a mandatory standard for all new school builds. School constructions and reconstruction designs were also developed to make educational spaces more effective and motivating.

However, after the full-scale invasion by Russia, equipment subsidies for educational spaces were withdrawn and schools did not receive additional support for the organisation of 5th grade learning based on the new State Basic Education Standard. On top of this, previously procured equipment for primary schools has been significantly damaged in regions under occupation. Other regions have seen equipment destroyed in missile attacks. For example, during the occupation of the Kharkiv region, 10,815 pieces of school equipment were damaged, destroyed or stolen in only two of the communities, including 1,514 pieces of electronic equipment procured as part of the reform process (CEDOS, SavED, 2023<sup>[7]</sup>). The war has significantly increased security requirements for schools. As noted earlier, educational facilities must equip shelters. Currently, around three-quarters of Ukrainian schools have shelters. However, they vary massively in quality and are often basements that are not sufficiently reinforced or equipped.

Educational spaces should provide both physical and psychological safety and promote the development of students' potential. Resuming the targeted subvention from the state budget for equipment, educational and methodological support for schools is a major goal. In particular, ensuring the availability of resources, including up-to-date equipment, is extremely important. This will help support the use of an active problem-solving approach and project work in STEAM subjects to motivate students to achieve better learning outcomes.

Ukraine also inspires to enhance the significance of social, emotional, and behavioural components of the school experience on a par with the academic side. The learning outcomes of the new State Basic Education Standard (2020) mention "well-being" 97 times (Cabinet of Ministers of Ukraine, 2020<sup>[10]</sup>). Under the standard, well-being is one of the promoted personal competences, which includes pursuit of life satisfaction, care for one's physical, mental, and social health, and adoption of a sustainable lifestyle.

In Ireland, education that enhances and supports well-being was implemented in lower secondary curriculum due to slumping levels of mental well-being and life satisfaction in children. Ukrainian students are suffering from the horrors of war, which negatively impacts their psycho-emotional state. Therefore, for the Ukrainian education system, the issue of children's well-being is more relevant than ever. It is highly important for schools to be able to improve and restore students' life resilience, increase their internal motivation to study and improve academic results so they can fulfil their full potential. Implementing policies to ensure the well-being of students at the individual, group, and school-wide levels is necessary. The needs of students require complex solutions, including inter-institutional co-operation and investments, and personnel, educational and methodological support. These are all extremely relevant to improving children's education conditions in a post-war Ukraine. Teachers will also need to be supported so they can work effectively with children who require psychological support.

The educational well-being policy in Ireland has been comprehensive and accompanied by adequate institutional, personnel, educational and methodological support. A similar policy focused on children's well-being could be an extremely important element to creating a progressive and safe environment at Ukrainian schools.

## ***Digitalisation of education***

Due to the switch to online formats because of the COVID-19 pandemic, the Ukrainian education system has significantly increased its levels of digitalisation. Teachers have actively acquired digital skills in line with professional standards. A significant number of educational facilities have switched to electronic document management, and digital databases in the domain of education are also being developed, with digital educational resources for children and adults created during the pandemic. Ukrainian School Online has provided lessons for students from grades 5-11 (Ukrainian School Online). Meanwhile, in 2020, the Ministry of Digital Transformations of Ukraine launched the online platform "Diia. Digital Education", which hosted 40 educational series on various aspects of digital literacy. In 2023, it expanded the platform with more web courses.

Schools have actively procured computer equipment; however technical support has been insufficient. On the eve of the Russian invasion, roughly 56% of school computer equipment needed updating, while some 72% of educational facilities were connected to the internet. Ukraine has received a significant amount of international aid to provide technical support for teachers and students during the war. However, as of the beginning of 2023, 25% of teachers still did not have a work computer, 20% have no access to the internet, and only 50% of basic and high school students have their own computers, laptops or tablets, with 74% using smartphones for learning (State Service of Education Quality of Ukraine, 2023<sup>[22]</sup>). Despite these challenges, the digitalisation process has contributed enormously to providing remote learning during the war.

Ukraine can take advantage of some international best practices in this area as it considers its next steps. For example, Estonia's government, working together with IT companies and private individuals, began implementing The Tiger Leap programme in the late 1990s, which aimed to heavily invest in developing and expanding computer and network infrastructure, with an emphasis on education. As a result, Estonia became the first country in Europe where all schools had access to the internet, with the vast majority having advanced teaching and learning equipment. Ukraine will also require collaboration between public institutions and private companies, both domestically and abroad, to provide the education system with sufficient technical equipment. Ensuring adequate internet connections, a sufficient number of digital devices for teachers and students, and implementing effective Learning Management Systems to improve feedback to students and parents is one of the goals of Ukraine's approach to digitalisation.

Estonian schools integrated digital literacy across the curriculum and taught it as a separate subject. Because students and teachers had already developed digital literacy skills, Estonia was able to organise remote learning more effectively during the COVID-19 pandemic. At the same time, digitalisation fuelled the new phenomenon of cyber-bullying, which must be addressed. Other challenges included some educators failing to understand the opportunities offered by digital tools as they did not keep up with the digitalisation process. Ukraine also has its experience of teachers' insufficiently developing digital skills, which urgently need to be updated. Ukraine needs to develop digital literacy, for example, by modernising information technology curricula, providing students with the relevant knowledge and skills, and also by introducing a system to combat cyber-bullying. It also needs to implement systems for the development and monitoring of information on the digital competence of teachers and students. Unlike some countries, Ukraine has no exams that can show the extent of digital skills achieved by students. It would be advisable to introduce assessment of this competency for both students and teachers.

In Korea the Green-Smart Schools project is being implemented, which aims to develop students' competencies to prepare them for life in the future world of rapid social and environmental changes. To ensure the education of the future, "smart classrooms" are planned to be equipped with digital technologies including virtual and mixed reality equipment, mirror devices, 3D simulators, intelligent closed-circuit televisions (Intelligent CCTV) and an integrated learning platform. For all these technologies to be effectively used for personalised learning, in February 2023, Korea announced an education reform plan for all, focusing on digital transformation and personalised learning. This is planned to be achieved through

"Teacher's Assistants" in the form of artificial intelligence (AI)-based textbooks in mathematics, English and computer science, which will be gradually introduced from 2025. Furthermore, math tutoring is planned to be made available using AI. Support for teachers who teach using AI-based textbooks will be provided through a group of teachers with experience in digital technologies and an understanding of the reform.

Development of curricula that would correspond to the vision of the Green-Smart School was yet another task. All teachers participated in professional development programmes focused on pedagogy that aims to support student development through individualised learning. In the case of Ukraine this would be a very important experience of involving digital technologies for individualised education, because after the war, children might have different levels of gaps in their learning and so would inevitably need such approaches.

One of the advantages of digitalisation is cost optimisation. The Finnish National Agency for Education also wants to reduce costs and has proposed that all teaching materials and content produced with public funds should be accessible in a public library. The development of educational materials in digital formats enables countries to reduce the costs of printing and distribution, as the experience in Sweden also proves. Ukraine also needs to use digital formats more widely, given the possible lack of budget funds for printing educational materials in war and post-war times. Materials accompanying innovations in the educational process, changes in the educational environment, pedagogical methods and practices should be developed in an electronic format and made available to teachers.

Other benefits of digitalisation are evident in the country case studies. To support teachers in Ireland, an online platform was developed to provide access to a range of teaching resources, including recommendations for practice, methodological materials, samples of students' work, and evaluation guides (Junior Cycle for Teachers). During the COVID-19 pandemic, Türkiye, with the support of the World Bank, invested significantly in the development of the interactive online digital education portal EBA, which has been operating since 2011. In Finland, they intend to establish a compulsory education register with data on the duration of a student's studies and identifying the professionals responsible for supervising students. The Swedish National Agency for Education created a digital version of materials for assessing the knowledge of refugee children. Given the high workloads of teachers, Ukraine needs a single resource offering free access to all educational materials. This is especially relevant for subject teachers, who need support and guidelines on how to implement changes to curricula. This requires the creation of a single digital platform that contains educational resources for teachers and students, and that is accessible and understandable for everyone. Ukraine also needs a register similar to the Finnish one, which can track the individual educational pathway of every student, especially in the case of large war-related knowledge gaps.

## Ensuring equity and inclusion

The OECD PISA study in 2018 revealed a gap of more than two years of learning between Ukrainian students who live and study in cities and those who live and study in villages. There is also a strong association between the socio-economic status of children and their academic achievements (OECD, 2018<sup>[15]</sup>). As a result of the war, educational gaps will widen - not only between urban and rural students, but also between the seven categories of children noted earlier. Achieving inclusion is one of the priorities of the NUS reform program. In addition to the legal framework, the government has:

- allocated a targeted subvention to create suitable conditions for children with special educational needs;
- introduced the position of assistant teacher;
- established a network of inclusive resource centres that help teachers develop individual curricula for each such child.

However, only 35% of Ukrainian schools are currently fully barrier-free. Inclusion in the post-war education system of Ukraine will imply a wide spectrum. This includes (re)integration of various groups of children into the education system, inclusion into the education process of children with disabilities – of which there will be a significantly greater number because of the war – and ongoing access to quality education.

### ***Optimising school networks and autonomy to address equity issues***

Establishing local autonomy and decentralising decision-making is one way of addressing equity issues. It has the potential to allow for local differentiation of the programmes offered in schools to meet the needs of all students in their communities. In effect, it removes a “one size fits all” approach to education provision and replaces it with a more tailored, locally responsive, approach.

The first step in the education transformation process in Estonia was decentralisation. Local governments received more powers and responsibilities to organise the education process in accordance with the needs and interests of their residents. School managers became responsible for the education process, as well as other areas such as the organisational and financial aspects of school life. To support them, financial management training was organised by the state. In order to overcome structural barriers to access to education in Estonia, social and educational policies were brought together. This included some payments to parents and free school lunches for all students. The Culture Ministry also provides targeted support to schools, so that all students have the opportunity to visit cultural facilities at least once a year.

To restore education in the earthquake-affected regions, Türkiye set up academic assistance tents where teachers helped students prepare for central exams to transition to middle and high school and provided additional study materials free of charge. In Ukraine, for the same purpose, free graduate training courses for passing NMT (National Multi-Subject Test) were created, which are posted on various educational online portals, in particular, Prometheus, EdEra, and iLearn. In 2022, the government also provided the opportunity to Ukrainian graduates to take assessments to allow them to continue their education in 39 cities across 23 different countries where Ukrainian refugees were living (Ukrainian Center for Educational Quality Assessment, 2022<sup>[26]</sup>).

The Finnish education system is based on the principle that all people are entitled to equal access to high-quality education and training. When proposing to extend the duration of compulsory education, the government undertook to cover all costs, including the remuneration of teachers, the creation and distribution of educational and methodological support materials, and the transportation of students to school if they live more than 7 km away from an educational facility. The extension of education until the age of 18 was accompanied with improved student orientation and support services to minimise dropout rates.

In Ukraine, policymakers have implemented decentralisation reforms that have granted local government more powers in the field of education. At the same time, Ukrainian schools do not have true financial autonomy. This will only happen if management system changes are implemented, and training provided to managers of educational facilities. In the post-war reconstruction in Ukraine, it will also be necessary to optimise the school network in view of demographic processes and to create opportunities for equal access to education. It is worth taking advantage of the experience of Finland, which carefully thought-out budget allocations for additional supervision and support for students, especially those at risk of dropping out. The network of lyceums (high schools) envisaged under the reform in Ukraine will probably require children to travel to them. Finland offers an example of budgetary support for this option.

A useful approach for Ukraine would be the development of an effective network of schools that reflect demographic trends resulting from the war. Students will have to travel to these schools, so it is important to enhance the capacity of them to accommodate their needs.

In their effort to restore the education system, Türkiye groups the earthquake-affected regions into at least three groups based on the extent of the damage, and creates a separate education management roadmap

for each group. Turkish professionals faced the challenge of collecting reliable data due to the displacement of students and their families. Ukraine also needs separate strategies for restoring the education system for each type of relatively safe territory; those that are under fire; those de-occupied after a short or long occupation; and those that are temporarily occupied. At the same time, the unpredictability of migration processes creates a great challenge for Ukraine in collecting reliable data and forecasting the number of students in different territories.

More than 20 000 teachers and 5 000 psychological counsellors came to the affected communities in Türkiye to provide assistance. This experience of involving specialists in affected communities is useful for Ukraine, in particular, for de-occupied communities where it is necessary to restore the education system.

It will also be important to train teachers to work in an inclusive environment with children with special educational needs, as well as children from different groups affected by the war. To achieve this, it is necessary to revise the curricula offered in higher pedagogical education institutions and include inclusive competencies in initial teacher education and training. It is also advisable to establish a basic inclusive education course to support and improve the practice of teachers already in service. In addition, the network of inclusive resource centres needs to be expanded, co-ordinated, and supported to increase its institutional capacity. Teaching and methodological materials should be developed according to the principles of universal design to meet the needs of students, including those with special educational needs.

### ***Transformation of the network of schools for a qualitatively new educational process***

Since Ukraine will need to reconstruct its educational institutions, it is extremely important to determine how to qualitatively improve the education system; to not simply construct a building, but rather create an educational space that is safe and developmental.

In this regard, the experience of Korea with the implementation of the Green-Smart Schools project is very interesting. Launched in 2020, the project aims to reconstruct and rebuild old school buildings, specifically those over 40 years old. The initiative envisages a new future-oriented school model that supports the adaptation of educational programmes to the needs of children and the introduction of innovations in teaching and learning.

The schools were selected according to transparent criteria and on a competitive basis. The following factors were taken into account: demographic indicators (trends in the number of students), the age of the buildings, safety arrangements and the desire of the team to participate in the project. School selection committees ensured that selection conditions were adequate and effective.

A unique aspect of the project is that it not only improves premises not fit for purpose, but also generates innovations that have become key to school redesign in Korea. The curriculum update was aimed at promoting digital and environmental education. It is extremely important for Ukraine to decide on the priority areas of educational redesign in schools that will be built or reconstructed. Useful elements of the Korean experience are the "Zero Energy" initiative aimed at increasing energy efficiency and switching to solar energy, as well as increasing Wi-Fi coverage of classrooms to 100% and developing a digital educational platform that uses big data and provides personalized educational content. Structural components of the project - new use of space, smart classrooms, green schools, and the construction of school complexes - will also be useful for Ukraine.

The government of the city-state of Delhi has started building 500 new schools with an emphasis on secondary and senior schools as part of the education reform. Almost 10 000 new classrooms, sports halls, libraries, and specialist schools focused particularly on natural and scientific disciplines and the performing arts were built. The goal was to create a safe and appealing environment conducive to learning for public school students who were previously disadvantaged. The reconstruction was accompanied by changes in educational materials and the introduction of the Happiness Curriculum, the Entrepreneurial

Thinking and the civic education Deshbhakti curriculum, which became mandatory at schools that participated in the reform and aimed at developing competencies relevant to the modern world. Infrastructure reconstruction was accompanied by significant investments, which strengthened confidence in reform success.

Ukraine will also benefit from Japan's experience restoring its education system after the triple disaster, namely the earthquake, tsunami and nuclear accident at the Fukushima power plant in the Tohoku region in 2011. The restoration of this region was seen as a unique opportunity for change and the revitalization of the education system. This concerned not only the physical reconstruction of the region and schools, but also the process of their "creative restoration". A very important rule was established, which Ukraine also affirms: instead of restoring schools to their previous state, it is necessary to develop an innovative education system that puts students at the center, providing them with vital skills so that they become leaders of the future. This contributed to the creation of the OECD's Tohoku School initiative, the main idea of which was to create a workforce to lead the region's recovery, with necessary skills in the industries and innovations needed for the country's development. These skills were used to define the OECD key competences, which are the basis of PISA and reflected in the Learning Compass, as well as the concept of student agency, which involves the leadership of children and youth (OECD, 2019<sup>[27]</sup>).

The project conducted "intensive workshops" involving all stakeholders - students, teachers, experts, community leaders, politicians, and business representatives - and this contributed to its successful implementation. In the process, charity and fundraising events were held. It became important to define KPIs and indicators to manage the implementation of the Tohoku School and measure its success. Responsibilities at different levels of management were clearly defined, and a management structure was created to ensure coordinated implementation. Participants held a 4-day series of activities where students collaborated with adults. The project used a grass-root model of innovation, which involves a "bottom-up" approach. Pupils took on leadership positions and developed initiative. Such responsibility for the development and implementation of the Tohoku School increased the motivation of students, allowing them to develop leadership, teamwork and critical thinking skills, alongside practical experience.

The project included goals that went beyond the education system. The main focus was on connecting education with the bigger world, in particular, learning from the business community and international and public organisations, in order to give a broader and more appropriate response to the need for recovery. The results of the project were reflected in the national educational policy. This is, in particular, the application of an approach focused on the needs of the student and the development of quality human resources that are able to respond to modern challenges. Such a successful experience can be applied in Ukraine in communities that will rebuild or reconstruct school buildings. They need to rethink the educational process and raise it to a qualitatively new level. For this purpose, OECD expertise will be extremely valuable, which puts the development of key competencies necessary for success in the complex and multifaceted 21st century, particularly in the post-war period in Ukraine, at the center of the educational process.

We consider an idea of a similar project implemented in partnership with the OECD a very promising one. Its task would be to create pilot educational institutions in the network of high schools. Their experience will be very valuable for the development of effective models of the functioning of upper secondary schools, or lyceums during the implementation of the New Ukrainian School reform.

### ***Integration and reintegration of children***

In the 1980s, many Russian schools in Estonia were teaching in Russian and did not recognise Estonian language or culture. During the formation of the national education system, the Estonian language became the official language of instruction, and over time all students were phased into studying in the state language. Estonian schools also prioritise the study of foreign languages, which are selected depending on students' needs. This enabled them to actively participate in international projects and better understand

the world and EU processes. Learning from this experience, Ukraine may introduce practices for adapting the curricula to children who lived in occupied territories and studied according to Russian curricula. For such children, it is necessary to develop programs for rapid integration into the Ukrainian-language education system.

The case study from Manitoba (Canada) may have relevant ideas to Ukraine's context. The exposure of historical and contemporary violence against Indigenous peoples of Canada led to changes in the educational policy of Manitoba. One of the objectives of the Truth and Reconciliation Commission of Canada was to promote understanding and reconciliation among former students, their families, and communities of Indigenous and non-Indigenous peoples. In its final report, the Commission called for the transformation of education to embody truth and reconciliation. In 2022, Manitoba published a framework policy for Indigenous education with activities that are based, in particular, on the principles of promoting truth and reconciliation, achieving justice, ensuring inclusion, striving for improvement, and prioritising well-being. A part of the framework included targeted training courses for Indigenous and non-Indigenous students to help them gain knowledge and understanding of the history, traditions, cultures, and contemporary issues of Indigenous peoples in Canada and globally.

In post-war Ukraine, it is likely that children living in de-occupied territories could be placed in classes where they will meet children who hold opposing views and have had a variety of experiences during the war, including experience of combat. Some of the main tasks of the school is to teach children to understand each other, to develop their national identity as Ukrainian citizens, and to debunk historical and ideological myths imposed on them by the aggressor state's education system. Reconciliation begins with the truth of historical events, which must be recognised by all, and children need to see this truth. As in Manitoba, it is worth developing targeted courses on the history, culture, and traditions of Ukraine for children who studied within the ideologically oriented Russian education system, which offered little information or distorted information about Ukraine.

### **Inclusion**

Introducing inclusive practices was yet another important step to ensure access to education for children affected by the earthquake in Türkiye. Special educational tents were set up for students with special educational needs, where the environment, equipment and educational materials met the needs of such children. Support classes were also available in the disaster zone, allowing students to study the courses they have chosen and overcome educational losses and gaps. Children who lost their families received scholarships for studies.

Portugal has also taken a number of steps to improve inclusion, which is a key aspect of the country's system. In 2016, it set up the National Programme to Promote Educational Success to tackle grade repetition, early school leaving and school failure. It was followed by the *Students' Profile* a year later and the foundations for the commitment to inclusion in schools were laid in new legislation in 2018. In developing new curricula, Portugal adopted a universal learning design and a multi-level teaching approach which aimed to ensure equal access to the curriculum for all students, regardless of their challenges. Inclusion is also supported through the use of interdisciplinary teams, which comprise teachers – including special education teachers – members of the pedagogical council, a psychologist, parents and guardians.

The Portuguese government also approved a regulation in 2018 that authorises school clusters and teachers to have autonomy and flexibility to manage more than 25% of the curriculum to address their specific context. For example, teachers can combine study sections, topics, subjects, and vary the duration of studies. In line with these best practices, Ukraine can develop inclusive curricula and practices for children with various educational needs, which will be extremely relevant in the conditions of post-war Ukraine.

## Monitoring and evaluation of the quality of education

Ukraine has experience of participating in international comparative studies, including TIMSS, PIRLS and PISA. An important tool for evaluating the quality of secondary education at the national level is the External Independent Assessment (EIA), introduced in 2007. This tool gives Ukrainian students the opportunity to undergo an impartial assessment of their educational achievements upon completion of secondary education. While Ukraine is now moving towards competency-based content for education purposes, the EIA needs to be reconfigured to assess competencies as well as knowledge. The Ukrainian Center for Educational Quality Assessment is working on this task. This reform envisages external final assessments after the primary and basic school levels. Assessment after the 9th grade needs to be supplemented with a test on professional determination; a career orientation section to help children choose their professional profile at high school. To assess competencies, it is necessary to develop a new toolkit, using for example student portfolios and other methods that can adequately assess learning outcomes including competencies and socio-emotional skills.

In recent years, the Ministry of Education and Science has changed approaches to evaluating the quality of schoolwork. Since 2019, the State Service of Education Quality has conducted institutional audits of schools, which have replaced the traditional certification process. The audits focus on establishing a school self-evaluation system to help schools identify problem areas and create plans to improve the quality of education. To assess the quality of the reform, the Ministry has implemented a triannual monitoring study to assess reading and mathematical competencies of students at the end of primary school. In 2016-2019, the first cycle of the survey was conducted despite being interrupted by the COVID-19 pandemic and war in the east of Ukraine. Therefore, Ukraine needs to restart national monitoring surveys, which will assess the progress of the reform and war-related educational losses in order to make adjustments in accordance with curricula.

### ***Schools' self-assessment and response to the findings***

There are examples of international best practice in monitoring and evaluating the quality of education which may be useful to consider. The main tool for assessing the quality of education in Estonian schools is self-assessment, which has supported educational facilities in achieving their declared development goals. The duty to monitor the school's development was taken over by school owners, while public authorities were involved in addressing problematic issues only if they could not be dealt with at the local level. Since 2012, school self-evaluation aimed at improving teaching, learning and well-being is an important part of the school evaluation process. Schools are supported by a quality framework, which provides a set of criteria or descriptors of quality for them to use.

Self-assessment tools are embedded in the procedures for institutional audits of Ukrainian schools. However, they need to be implemented at a broader level, as well as the procedures for determining the strategic vision and goals of educational facilities. These methods can be applied to improve institutional audits of Ukrainian schools.

### ***External monitoring of educational facilities***

In Estonia, the state periodically monitors the entire scope of activities at schools, but only in certain aspects. For example, it monitors how legislation regulating the work of teachers is implemented. In Ireland, monitoring of reforms to the junior cycle also take place, such as intra-school reflective analysis and reviews of subject specifications, as well as state inspection of teaching and learning in schools. Portugal also monitors how schools implement teaching autonomy and flexibility by using teams to visit schools, collect and analyse data, and share information and best practices on a Moodle platform.

Finland monitors the impact of its reform under six themes, including the well-being of students and the economic consequences of the reform. Monitoring is also important in Sweden where external monitoring of school activities is carried out by the Swedish National Schools Inspectorate, which visits schools to check on the implementation of tools for assessing the knowledge of newly arrived children.

In Delhi, the implementation of the Entrepreneurial Mindset curriculum began with 24 pilot schools whose experience helped scale up the change. During the pilot, the impact of the curriculum was closely monitored by both teachers and the independent research group IDInsight. This contributed to the preparation and revision of materials for a second version, which was then implemented at a wider level. This is consistent with the approach in piloting the reform in Ukraine, where one of the problems was the lack of feedback. This aspect must be taken into account in the further piloting of the reform to improve the quality of curricula and materials.

In Ukraine, monitoring and summative assessment of schools and students' academic achievements are handled by the State Service of Education Quality and the Ukrainian Center for Education Quality Assessment. The assessments are mainly based on quantitative indicators. Following the examples of other countries, these institutions should start monitoring quality performance indicators and encourage schools to change as part of their activities. Monitoring of the New Ukrainian School reform should follow the Irish model of combining different stages and research organisations.

### ***Graduation exams as a source of transparent and accurate information***

In Estonia, they introduced two new types of exams – national standard-determining tests and final examinations, which provide information regarding students' academic achievements. National standard-determining tests are conducted at each school level and reveal the level of knowledge and skills development. There are no grades attributed within these tests, and the state uses them to promote the culture of assessment as a learning and developmental tool. The final examinations are held after the completion of basic and high school, and they are a source of information for the state, schools, and teachers.

Ukraine needs to accelerate changes in approaches to data analytics based on external independent assessments and other school tests, pay more attention to how they reflect the competency-based approach, and use data to improve the quality of education.

## **Engagement and communication**

Education reform in Ukraine has been successfully implemented in primary schools mainly due to the active engagement of all impacted stakeholders. Parental and civil society organisations, teachers and schools, national and local government have participated in developing the philosophy and spirit of the reform, which led to the development of the New Ukrainian School concept (Ministry of Education and Science of Ukraine, 2016<sup>[12]</sup>). This concept explained the essence of the entire reform process to a wide audience in an engaging way. An ecosystem was formed – including specialised facilities, civil society organisations and active parents and teachers – who worked together to develop and implement the reforms.

The COVID-19 pandemic and the war disrupted links within the ecosystem. As a result, the roll-out of the reform to cover the 5th grade of basic school has not been a success story. This is also due to a lack of effective communication to explain the reform process to target groups. The capacity of civil society organisations, for example, was not sufficiently used to advance the reform. Therefore, a greater focus on involving different stakeholders and the use of more effective communication will be needed in future.

Analysis of international best practices highlights the crucial role of effective communication activities during the implementation of education changes.

### ***Engaging stakeholders in making conceptual and political decisions***

In Estonia, teachers, parents, and students are involved in the development of policies and educational solutions. At the initial stages, they are invited to discussions to consider the need for change, possible alternatives and implementation challenges. Education associations are also involved in developing curricula. Since 2010, the Irish government has engaged teachers' trade unions and school leaders in redesigning the junior cycle curriculum and communicated via surveys, focus group discussions and regional workshops. Various consultations were also held with parents and children. The focus on engaging all stakeholders was key to improving the proposals and their wider understanding in society.

The involvement of internal and external expertise, in particular the work of the OECD, on international models of education, has become the strength of the Tohoku School in Japan. The school project is a joint initiative of the OECD, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) and Fukushima University.

The implementation of the Green-Smart Schools project in Korea is marked by collaboration at ministry level, as well as with communities and participating schools. In general, the project is a national political initiative, overseen by the Ministry of Education, and implemented at the local level by education departments. It is important that the administrative units responsible for this project were housed in the education departments, while the auxiliary structures, headed by directors responsible for all tasks related to the project, were housed in the participating schools. Multi-level project support systems were developed, in the form of both central advisory bodies and regional ones, consisting of government representatives, schools, and groups of experts and the public.

The project management was also structured to incorporate external expertise, in particular an advisory body, which included experts from various fields. The sources of funding for the project were clearly defined: 30% came from the state budget, and 70% from local budgets. All stakeholders were involved throughout the development of the project plan.

The project was implemented with a partial public-private partnership according to the Build Transfer Operate (BTL) model, characterised by revision and adaptation of regulatory documents to take the needs of consumers into account. The creation of an adequate legal basis for the implementation of public-private partnership in education is extremely important for Ukraine.

The Portuguese government, when developing a new concept of learning outcomes, invited subject teachers to discuss which competencies are most needed for modern students. This contributed to teachers adopting a competency-based approach to education. The Ministry also held meetings with school leaders, trade unions, parents, students and other groups which helped create a sense of shared responsibility and ownership of school innovations. In Finland, they held a series of webinars for all stakeholder groups involved in the reform program, including schools, municipalities, education organisers and vocational training providers. Children and their parents or guardians were informed about the changes, consequences, and impacts of compulsory education in an easy-to-understand graphic format.

The experiences above explain why the progress of education reform in Ukraine has slowed down. At the stage of its expansion to cover basic school, there was no proper counselling for teachers. In the future, teachers and the public should have more involvement in the initiation and progress of reforms and in other changes. It is important to resume engagement with different groups of stakeholders. This will facilitate recovery of the ecosystem around the secondary education reform programme in Ukraine – for example, by including the participation of active parents, civil society organisations, specialised institutions and trade unions, as well as the involvement of new groups, such as representatives of students who studied within other education systems. It is also necessary to bring together educational organisations to update the content of education and support the professional development of teachers.

### ***Ensuring the influence of various stakeholders on development of new projects and initiatives***

In Portugal, the Ministry of Education worked to build commitment to the *Students' Profile* across all government departments – not just to support change, but also to co-ordinate the reforms over the long term, regardless of electoral cycles. For education, a long-term perspective and a policy vision that are passed from one government to another are extremely important. This is also vital for Ukraine, which must effectively implement the reform of basic schools and high schools.

Similarly, the Swedish Education Agency held consultations with teachers' and students' unions, the association of school principals, and municipal and district councils when developing assessment tools. The agency took into account comments and additions from these stakeholders for further development of the materials, in particular, by abridging the texts to make them shorter and more convenient for teachers already overloaded with work.

Stakeholder engagement was also at the heart of the Green-Smart Schools initiative in Korea. Teachers filled out questionnaires and met with parents to discuss how to create a physical space fit for educational activities, as well as create a new school culture.

At the pre-planning stage, students and teachers were involved in the process and expressed their wishes and discussed examples of what a Green-Smart School should look like. Prioritising user participation and welcoming opinions and suggestions improved engagement, and also ensured that the building would be adapted to the needs of users who were in the school every day and knew the challenges, limitations and opportunities of the environment.

How children would study during the renovation of the premises was a significant challenge. Therefore, there was a proposal to create portable classrooms, which could be an interesting experience for Ukraine. There have been questions from parents about how safe such classrooms are, and concerns about the growing use of digital devices - how children would be protected from dangerous content and whether it would affect reading and book-using skills. The formulation of these complex issues contributed to their discussion and resolution.

Seeing education as a joint venture between parents and schools, the Delhi government has sought to strengthen the role of parents by building partnerships, holding regular parent-teacher conferences and even encouraging employers to give parents half-day leave to attend. The role of the School Management Committees, which ensured the parent voice was heard in the programming decisions made by the head of the educational institution, was strengthened. Steps were taken to have these committees be operational rather than only exist "on paper", practically involving the community in the school's activities. For Ukraine, this is an important experience, because local communities maintain schools, so the participation of parents and the community in planning the school's strategy is necessary, as it increases attention to education and strengthens the motivation of all participants in the educational process.

In Ukraine, the development of regional centres and communities to implement relevant educational changes can support reform. They can provide a locus for schools, parents and communities to join regional educational events, where they can share success stories of learning, education, and improvement of the education infrastructure.

### ***Diversified communication with different groups***

To promote knowledge tests for newly arrived children in Sweden, the Swedish Education Agency developed various communication methods such as video, illustrations, and targeted booklets for parents and student. Other countries sharing their experiences in this publication have made available explanatory materials in a range of languages for parents and students.

The Turkish Ministry of National Education communicated with the country's population in detail through various channels, including official social media accounts, press conferences, newspapers and television, as well as through teachers and psychologists.

While preparing for the implementation of the Green-Smart Schools project in Korea, there were cases when some schools did not involve the public and parents adequately. Insufficient public information about the project and failure to stick to the consensus procedure led to resistance and misunderstanding of its purpose.

Delhi has taken a strategic approach to making the education reform public, including through a large number of official government press releases, announcements of parents' meeting dates on television, radio, and billboards with accessible infographic and visual communication.

Ukraine can be guided by this experience when developing information and advertising campaigns that cover different population groups. The development and implementation of sustainable communication protocols adapted to the needs of different groups is a first step. The content and formats of such protocols should adjust to different user groups to consider their needs. The protocols should also include crisis response scenarios for possible situations of misunderstanding concerning educational policies and reforms. In particular, a communication protocol for post-traumatic situations is essential. Adults and children suffering from trauma and an aggravated psychological state require communication based on understanding. It is important to involve psychologists, specialists in the fields of crisis and trauma psychology to develop such a protocol.

## Reflections

Education systems from around the world are developing and implementing systemic reforms in a bid to adapt to rapid global changes that require the next generation to learn new competencies and values. The case studies in this publication are valuable to Ukrainian policymakers and will help Ukraine update and rebuild a quality school education system following the traumatic experiences of war.

The studies give many insights, including making the point that the involvement of all stakeholders is critical to the development and initiation of successful changes to education systems. While this requires considerable effort and long-term commitment, it is the price of the democratisation of education. That price is worth paying, as it ensures that all elements of society buy-in to the reform agenda and greatly enhances the chance of effective policy implementation.

We are grateful to the OECD and the Future of Education and Skills 2030 project team for their support. Based on Ukraine's needs and international practices, it is possible to suggest the following model of education transformations in Ukraine during and after the war (Table 2.1).

**Table 2.1. A model of education transformations in Ukraine during and after the war, based on current challenges and international educational best practices**

Areas of implementation	Education transformations	Relevant experience of other countries
Overcoming losses and gaps in the education system	Diagnosis of educational losses at the individual level Customisation of curricula Additional individual and group teaching hours for teachers, summer schools Online tutorship platform Digital learning resources to overcome educational losses	Estonia, Manitoba (Canada), Korea, Türkiye, Sweden
Increasing the duration of compulsory education	Transition to the 12-year compulsory education in the framework of continuation of the New Ukrainian School reform	Finland
Updating the content of education	Implementation of core competency-based content of education	Delhi (India), Estonia, Ireland, Portugal, Japan
	Updating programmes for learning the national (Ukrainian) language, literature and history, geography for the sake of developing the national identity Enhancing command of foreign languages Enhancing science and mathematics education (STEM)	Delhi (India), Estonia
	Development of socio-emotional skills, well-being learning	Delhi (India), Ireland, Manitoba (Canada), Portugal, Türkiye
Development of educational and methodological support for the new content of education and assessment of students' educational achievements	The updated content of education should be accompanied by expanded educational and methodological materials for students and teachers, in particular in the digital format	Delhi (India), Ireland, Korea, Portugal
	Development of materials for formative assessment and assessment of competencies	
Professional development of teachers and school principals	Targeted professional development of teachers and school leaders in accordance with needs of the reform, in particular, regarding use of new standards of the content of education, the competency-based approach, development of social and emotional skills, formation of life resilience and ensuring well-being, active learning methods, inclusion and overcoming educational losses. Supporting teachers and school principals with respective educational resources prepared for implementation of changes	Delhi (India), Estonia, Ireland, Manitoba (Canada), Korea, Portugal, Türkiye, Finland, Sweden, Japan
	Increasing teachers' social status and salaries	Finland
Creation of a safe and developmental educational environment	Equipping safe shelters in every school. Rebuilding destroyed and damaged educational facilities with up-to-date designs for equipping educational spaces Resuming the targeted subvention from the state budget for equipment and educational and methodological support of schools in accordance with requirements of the New Ukrainian School reform	Delhi (India), Korea, Türkiye
	Providing systemic psychological support to students and teachers Implementation of the policy of ensuring the well-being of students at the individual, group, and school-wide levels	Delhi (India), Ireland, Türkiye
Digitalisation of education	Development of the digital infrastructure of education This includes ensuring adequate internet	Delhi (India), Estonia, Korea, Portugal, Türkiye, Sweden

Areas of implementation	Education transformations	Relevant experience of other countries
	<p>connection, a sufficient number of digital devices for teachers and students, implementation of effective LMS systems to improve feedback from students and parents.</p> <p>Development of electronic educational resources to implement educational changes.</p> <p>Creation of a single electronic educational platform to search for educational resources.</p> <p>Implementation of systems for development and monitoring of information and digital competence of teachers and students</p>	
Ensuring equal access to quality education, inclusion	<p>Development of an effective network of schools in view of demographic processes and increasing their capacity to improve the quality of education.</p> <p>Transformation and reconstruction of the network of schools with the simultaneous renewal of the quality of the educational process.</p> <p>Building an inclusive educational environment at all educational facilities (barrier-free, establishing mutual understanding, resolving conflicts).</p> <p>Training teachers to work in an inclusive environment with children with special educational needs, as well as with children from different groups affected by consequences of the war.</p> <p>Training of a sufficient number of professional to ensure inclusion at schools and the network of inclusive resource centres.</p>	Delhi (India), Estonia, Ireland, Korea, Türkiye, Sweden, Japan
Monitoring and evaluation of the quality of education	<p>Development of indicators for education reforms and changes and ensuring internal self-assessment of schools based on them for the sake of monitoring and respective adjustment of change management.</p> <p>Implementation of final external assessments after completion of primary and basic secondary education to receive feedback on students' academic achievements.</p> <p>Application of the student portfolio and other methods to assess competencies and socio-emotional skills</p>	Delhi (India), Ireland, Portugal
Engagement and communication	<p>Resuming engagement of different groups of stakeholders in education changes.</p> <p>Development of regional centres and communities to implement relevant educational changes.</p> <p>Development and implementation of sustainable communication protocols adapted to different groups to discuss education changes.</p> <p>Development and implementation of the communication protocol in a post-traumatic situation.</p>	Delhi (India), Ireland, Manitoba (Canada), Korea, Portugal, Türkiye, Finland, Sweden

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