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UKRAINE: Can Online Tutoring Sustain Learning During Wartime?

War disrupts every aspect of society, but its impact on children's education can have consequences that last for generations. In Ukraine, where schools have been damaged or destroyed and millions of families displaced, maintaining educational continuity has become a critical challenge. Since February 2022, Ukrainian students have faced prolonged school closures, infrastructure attacks, and the psychological trauma associated with conflict and displacement - all while trying to continue their education.

The losses in human capital associated with conflict threaten not only individual futures but Ukraine's long-term recovery and development. While many may assume that education must wait until after conflict ends, evidence suggests that failing to invest in human capital during wartime can significantly undermine economic recovery.

To test strategies to support education during conflict, the World Bank's Strategic Impact Evaluation Fund supported research of an online tutoring program designed to help Ukrainian students continue learning during ongoing conflict. Working with the NGO Teach for Ukraine, researchers tested whether small-group online tutoring could effectively support both academic learning and mental health during wartime. The program was implemented through three consecutive experiments between early 2023 and mid-2024, reaching nearly 10,000 students across all regions of Ukraine.

The program variants led to substantial learning gains in language and math while also reducing student stress. Researchers identified several factors that may have contributed to the observed impacts, including learning from peers, improved student attitudes toward education, stronger socio-emotional skills, and increased student motivation. In addition, high participation rates, despite electricity outages and other disruptions caused by the war, showed that the programs met real community needs. With remarkable estimates of return of $16-30 in benefit for every dollar spent and the scale achieved using existing schools and teachers, the online tutoring program represents a highly cost-effective intervention for supporting student learning and well-being during times of conflict and crisis.

COVID RECOVERY

Context

Ukraine's education system faced severe disruption following Russia's invasion in February 2022. By 2023, between 10 percent and 13 percent of schools had been damaged or destroyed. Education spending fell from 178.6 billion hryvnias (17 percent of total expenditure) in 2021 to just 110.5 billion hryvnias (7 percent) in 2023.

To enable safe learning, schools were required to have bomb shelters - a requirement many could not meet. As a result, only 30 percent of secondary schools offered fully in-person classes, while 34 percent operated exclusively online and 36 percent adopted a blended approach. Frequent power outages and infrastructure attacks further disrupted access to online education.

These disruptions came on top of learning losses likely

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sustained during the COVID-19 pandemic. In 2022, Ukrainian students scored well below OECD averages on international assessments, with gaps corresponding to approximately one year of lost learning. These deficits spurred the Ministry of Education and Science to partner with local organizations to support students during the war.

The education technology context was conducive for remote interventions. Nearly all households (99 percent) that expressed interest in participating in the programs had access to internet-enabled devices, and the Ministry of Education's All-Ukrainian School Online platform, developed during the Covid-19 pandemic, provided curriculum-aligned content for grades 5-11. The wartime context, however, also generated conditions that suggested children may need more than academic instruction. The psychological toll on students was severe. By 2024, most students reported elevated stress levels, and a significant number of those exposed to conflict screened positive for psychiatric conditions.

Did You Know?

- By 2023, between 2,900 and 3,500 schools (10-13 percent) in Ukraine were damaged or destroyed because of the war.
- Education spending fell from 17 percent to 7 percent of government expenditure.
- 5.4 million people were internally displaced at the peak of the crisis.
- Only 30 percent of schools could offer fully in-person instruction.

Sources: World Bank et al., 2023a; World Bank, 2023b

Evaluation

The Ministry of Education and Science sought to identify feasible strategies to support students during the war. Researchers partnered with Teach for Ukraine in early 2023 to adapt and evaluate variants of an online tutoring program designed to supplement the education Ukrainian students were receiving through existing modalities.

Photo: UNESCO

The study evaluated the impact of the online tutoring programs on academic learning and mental health during different phases of the conflict. All variants of the program offered three hours of weekly tutoring in math and Ukrainian language, delivered in small groups of three students over six weeks. Students aged 10-17 were eligible to participate, contingent on parental consent and student assent.

The first experiment (February-March 2023) occurred during a harsh winter with frequent power outages, testing whether online tutoring was even feasible under wartime conditions. Students were randomly assigned to groups, and tutors were instructed to adapt sessions based on student needs.

The second experiment (April-June 2023) added diagnostic tools to better support learning. Students completed baseline assessments that allowed grouping by ability level, and tutors received diagnostic reports showing their students' average strengths and weaknesses.

The third evaluation (February-April 2024) tested the impacts of adding psychosocial support practices, including guided reflection and emotional regulation tools. The psychosocial support tools were developed with the Harvard Program in Refugee Trauma. While displacement had decreased by this time, data suggested that the mental health burden on children had intensified. Tutors integrated breathing exercises, mood check-ins, and resilience-building activities into their sessions.

Across all experiments, demand exceeded capacity. A total of 9,194 households (9,832 students) participated, with students from every region of Ukraine enrolling despite varying conflict intensity. Due to oversubscription, eligible households were randomly assigned to treatment or control groups, with students in the control group offered spots in later waves of the program.

Researchers measured student achievement in mathematics and Ukrainian language through self-administered tests. The online platform and tutors generated metrics for the evaluation, including attendance, interactions in the online platform, and engagement during the sessions. Homework activity, social-emotional skills (such as confidence, self-efficacy, and persistence), and mental health measures (stress and anxiety) were collected using self-reported surveys.

Findings

Despite wartime conditions, the online tutoring program proved both feasible.

Participation exceeded expectations, with 68-72 percent of assigned students attending at least one session. Students participated in an average of 6 out of 12 sessions per subject, with attendance remaining stable throughout the program. Most absences were due to power outages or illness rather than dissatisfaction. Engagement was remarkably high according to tutors - 97-98 percent of attending students actively participated, and 95-97 percent appeared attentive during sessions.

The program led to substantial improvements in academic achievement across all experiments.

Math scores improved by 0.49 standard deviations in the first experiment, and 0.22 standard deviations in both the second and third experiments. Ukrainian language scores improved by 0.40 standard deviations in the first experiment and 0.32 in the third (with no effect in the second). These gains are substantial - a meta-analysis of in-person tutoring programs from around the world implemented during peacetime reports an average effect size of 0.28 standard deviations. Because so many factors were different - the samples of participating children, the program components, and the wartime context - it is not possible to compare the magnitudes of the effects across the three experiments.

Mental health benefits were consistent, with stress levels decreasing in two out of the three experiments.

Stress levels decreased in all experiments by 0.10 to 0.12 standard deviations. While the reductions may seem modest, they translate to meaningful improvements - moving approximately 7-9 percent of students from mild to normal stress levels. The program did not significantly affect anxiety.

The program increased interactions with peers, improved social-emotional skills, and spurred student engagement with additional learning resources.

Across the three experiments, treated students were 22-48 percentage points (from a base of 47 percent) more likely to interact with peers on an online platform outside of sessions and 8-13 percentage points (from a base of 22 percent) more likely to report having friends in the program. Social-emotional skills like grit and self-efficacy improved substantially (by up to 0.33 standard deviations) in the third experiment. Students were also 21-33 percentage points (from a base of 29 percent)

Photo: UNICEF Ukraine

more likely to participate in additional tutoring and 14 to 27 percentage points (from a base of 23 percent) more likely to use online educational resources for more than an hour per day.

A parallel experiment suggests that engaging parents with students' learning is not straightforward.

Researchers implemented an experiment among the control group of the first experiment. When they were finally offered tutoring, the control group was divided into two experimental groups. In one, households simply received the basic tutoring program. In the other, parents received text-based tips and motivational messages on how to support their children's learning. Results suggest that this engagement backfired. Children in this group demonstrated *decreases* in both language (0.23 standard deviations) and math (0.15 standard deviations).

The program delivered high value for money. Estimated benefit-to-cost ratios ranged from 16 to 30.

At approximately $90 per student, the intervention cost far less than many peacetime education programs while delivering larger impacts to student with low baseline learning and wellness. Even under conservative assumptions where only 20 percent of gains persist after five years, benefit-to-cost ratios remain between 3.3 and 6.1. The program maintained similar per-student costs even when scaled up in the third experiment, demonstrating financial sustainability.

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Conclusion

This evaluation demonstrates that investing in education during active conflict is not only possible but effective. The online tutoring program achieved remarkable results - improving learning while also reducing student stress - all while bombs fell and infrastructure crumbled.

The program's success likely rested on several key factors. It leveraged existing infrastructure (internet connectivity and devices already in homes) and human capital (trained teachers with available capacity due to school closures). Small group sizes balanced personalized attention with peer support. The flexible online format allowed continuation despite displacement and power outages. Perhaps most importantly, it demonstrated to students and families that their education mattered even during war.

For Ukraine, scaling this approach could help prevent a lost generation. The program reached students across all regions regardless of conflict intensity. It offers a model for maintaining educational continuity until schools can safely reopen. As conflicts worldwide increasingly affect civilians and last longer, the question is not whether to invest in education during wartime, but how to do so effectively, and this research demonstrates that online tutoring presents a feasible and effective strategy to keep children learning.

The Strategic Impact Evaluation Fund, part of the World Bank Group, supports and disseminates research evaluating the impact of development projects to help alleviate poverty. The goal is to collect and build empirical evidence that can help governments and development organizations design and implement the most appropriate and effective policies for better educational, health, and job opportunities for people in low and middle income countries. For more information about who we are and what we do, go to: http://www.worldbank.org/sief.

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