



Digital Technologies in Ukrainian Education Help Close Learning Gap in Early Grades

Primary school students who studied in mobile classrooms equipped with a digital textbook, significantly accelerated their reading speed in 6 to 8 weeks. Compared to online learners, these students can read 10% faster.

The study "Results of monitoring the reading rate of primary school students in the frontline regions", conducted by the NGO "Ukrainian Smile", confirmed the correlation between the reading rate and the form of education: online or offline. This is the first large-scale study in Ukraine on the development of reading skills of students in grades 1-4, covering all 6 frontline regions and conducted using artificial intelligence.

The study involved 2,088 primary school students from 165 schools in the Donetsk, Dnipropetrovsk, Zaporizhzhya, Mykolaiv, Kharkiv, and Kherson regions. Schools are participants in the "Digital Tools for Overcoming Learning Gaps, Socio-Emotional Development and Mental Health Assessment for the Most Vulnerable 35,000 Children" project, which is implemented by the NGO "100% Life" in partnership with the NGO "Ukrainian Smile" and with the support of the Humanitarian Fund for Ukraine.

The project is being implemented in response to the challenge of overcoming the educational backlog of children in the rural areas of frontline regions. Previously, the PISA2022 study showed a difference between the performance of students from urban and rural areas.

Experts in the NGO "Ukrainian Smile" educational team studied the impact on average reading speed of online/offline education and AI empowered reading fluency diagnostics. In the mobile classrooms using offline learning, the reading speed was on average 10% higher than in remotely taught online classes, indicating a much greater efficiency in catching-up core reading skills using digital textbooks in mobile classrooms. The difference was more than 6 to 7 words per minute.

Students in grades 1-4 of primary school who studied offline in mobile classrooms using digital textbooks significantly accelerated their reading speed in 6 to 8 weeks.

The eKidz.eu digital textbook contains AI Literacy Tests. Processing by an integrated artificial intelligence tool allows comprehensive data analysis to evaluate educational processes with a large student population located in different regions.

The study confirmed the increasing knowledge gap between students from urban and rural schools, in grades 1 to 4. This demonstrates the urgent need for students in primary school and rural areas to escalate their learning in order to catch up. The use of mobile classrooms and digital textbooks is an effective way to do this.

At the same time, the influence of the geographical factor (within 6 frontline regions) on the occurrence of educational losses of primary school students was not found: the lowest and the highest indicators of reading speed are the same.

According to the data analysis results, it was found that the reading speed also depends on the contingent of the educational institution. There was a directly proportional relationship between the size of the institution and the students' technical reading skills. In smaller educational institutions, totaling less than 50 students, students do not reach the required reading standard for their age. The average lag rate is 10 words per minute compared to larger schools. Most of these small schools are located in rural areas of the above-mentioned regions.





The war has significantly affected the educational processes in Ukraine. In 2024, the Ukrainian Education Cluster identified 1.2 million children and teachers in need of humanitarian assistance. Approximately 330,000 children and 68,000 teachers need digital devices to provide online learning because they cannot regularly study offline. Therefore, one of the priorities is to introduce digital education to schools in remote and frontline regions, where students cannot study in classrooms due to the daily threat of air raids. The implementation of the project was made possible with the assistance of the Institute for Modernization of Education Content of the Ministry of Education and Science of Ukraine and regional institutes and academies of postgraduate pedagogical education.

The project created 100 mobile classrooms equipped with digital textbooks for students located in frontline areas, to receive educational intervention. Each classroom is equipped with laptops and digital tools necessary for learning, digital literacy development, and psychosocial support. The project contributes to reducing social and educational inequality among Ukrainian children. Frontline students gained access to digital education, social and emotional development.

The NGO Ukrainian Smile is a non-governmental organization that seeks to support the future of a free Ukraine by providing the next generation with access to education, welfare and health care. The organization is part of the "Coalition of Devices", an association of organizations, businesses, governments and philanthropists that will provide devices for online learning to Ukrainian students and teachers who need to conduct the educational process online.

CO "100% Life" is the largest patient organization in Ukraine, working in public health for more than 20 years, implementing national humanitarian aid projects with the support of international donors.

