

The Mobile and Online Learning Impact in the Ukraine War

Rareș-Constantin CIOBANU
Bucharest University of Economic Studies, Romania
raresciobanu95@gmail.com

In this paper it is displayed the resilience of the Ukrainian educators and students during the ongoing conflict with Russia, with a particular focus on the role of online learning platforms. Despite the challenges posed by air raids, evacuations, and infrastructure damage, educators have swiftly transitioned to virtual classrooms using platforms like Zoom, Google Meet, All-Ukrainian Online School and others. These platforms not only provide continuity in education but also serve as spaces for emotional support, fostering discussions about the conflict and offering solidarity to students amidst uncertainty. While significant challenges persist, including reaching students in heavily affected regions, the adaptability and dedication of Ukrainian educators underscore the resilience of the human spirit in adversity. Online learning continues to serve as a beacon of hope, ensuring that the pursuit of knowledge endures even in the darkest of times.

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1 Introduction

Ukraine, a nation at the crossroads of Eastern Europe, has been engulfed in a complex and protracted conflict that has garnered international attention and sparked geopolitical tensions. The origins of the conflict can be traced back to 2014. The conflict, often referred to as the "Ukrainian crisis" or the "War in Donbass," has resulted in a humanitarian crisis, significant loss of life, and deep divisions within Ukrainian society [1].

The outbreak of conflict in Ukraine in 2022 not only unleashed a wave of violence and instability but also had profound implications for the country's education system. Against the backdrop of escalating hostilities and geopolitical tensions, the education system in Ukraine faced unprecedented challenges, exacerbating an already fragile situation. As schools became battlegrounds and students and teachers found themselves caught in the crossfire, the conflict had far-reaching consequences for access to education, the safety of educational institutions, and the well-being of students and educators alike. This introduction sets the stage for an exploration of the intersection between the war in Ukraine and its education system, examining the impact of conflict on learning

and teaching, the resilience of the education sector, and the efforts to mitigate the effects of war on Ukraine's students and schools. Through this lens, we can gain insight into the complex interplay between conflict and education and the urgent need to safeguard the right to education in times of crisis.

The "2023 End of Year Results Summary Extended Narrative" report from UNICEF highlights the profound impact of the prolonged war in Ukraine on children's education. Here's a summary of the key points outlined in [2]:

1.1 Impact on Children

War has led to increased risks of poverty, disease, family separation, learning loss, mental health issues, violence (including gender-based violence and trafficking), and unexploded ordnance. Over 2.92 million Ukrainian children, including 1.5 million girls, are in urgent need of assistance. Tragically, 531 children have been killed and 911 injured [2].

1.2 Displacement and Safety Concerns

The conflict has resulted in significant displacement, with over 3.7 million people internally displaced, including 629,000 children. Many families face daily threats,

particularly in frontline communities, and live in areas with damaged infrastructure and limited access to necessities like water, electricity, education, and healthcare [2].

1.3 Economic Impact

Poverty levels have surged, with the poverty rate estimated to have risen from 39% in 2021 to 60% in 2022. Children are particularly affected, with 65% living below the poverty line in 2022. The war has caused a "poverty shift," pushing previously stable households into poverty due to factors like destruction of housing, displacement, and loss of income sources [2].

1.4 Healthcare and Sanitation Crisis

Attacks on health facilities and energy infrastructure have led to interruptions in healthcare services and water supply. Access to clean water is severely compromised, with millions facing challenges due to the destruction of water networks. Health risks, including acute respiratory diseases and waterborne illnesses, have increased, exacerbated by low immunization rates [2].

1.5 Education Disruption

The conflict has severely disrupted education, with over 50% of children relying on online or blended learning. Many schools across frontlines have closed for safety reasons, and a significant portion of educational infrastructure has been damaged or destroyed. Learning outcomes have deteriorated, with students experiencing significant skills loss.

According to UNICEF, over 4000 educational facilities have been damaged or destroyed since the conflict began in 2022 representing 13 per cent of all education infrastructure (Rapid Damage and Needs Assessment (RDNA) 3, February 2024) [2].

A CBC article from 2022 provides a glimpse into the harrowing experiences of children returning to school in Ukraine amid the ongoing conflict with Russia [3].

Children in school No. 21 in Chernihiv, Ukraine, are facing a new reality shaped by the war. They are familiar with the sounds of air raid sirens and can distinguish between different types of weapons. The school has been extensively damaged by Russian bombardment, forcing its closure. When schools reopen, students will be relocated to different classrooms. The article highlights the lack of plans and funding for the reconstruction of school No. 21, with authorities prioritizing investment in partially damaged schools for speedy restoration [3].

Overall, the article illustrates the resilience of Ukrainian children in the face of adversity, their determination to overcome fear, and the challenges they face as they strive to rebuild their lives and education amidst the ongoing conflict.

1.6 Eurostat statistics

Eurostat provides important statistics related to the decisions granting temporary protection by citizenship for Ukrainian people.

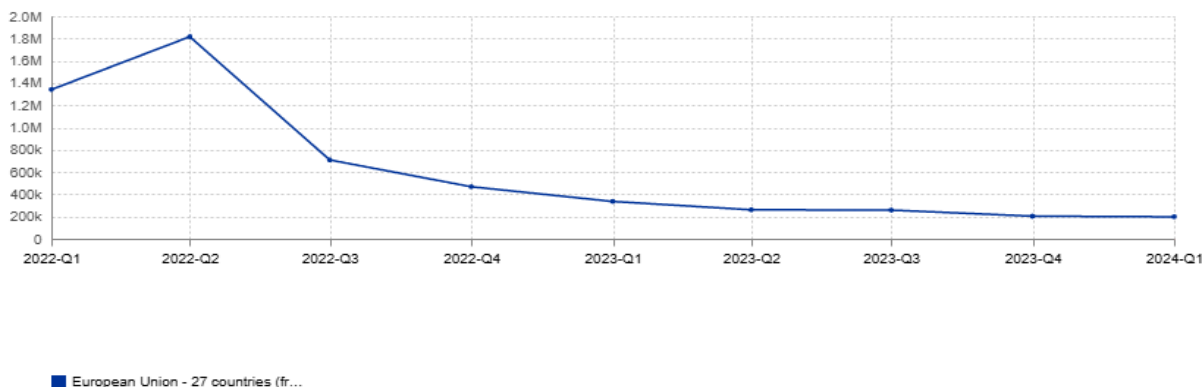


Fig. 1. Decisions granting temporary protection by citizenship, age and sex - quarterly data [4]

As it can be seen in Figure 1 the peak of temporary protection for Ukrainian people was in the first and second quarter of 2022. More than 3.2 million people left the country

and received protection in other countries. Most of them went to countries like Poland, Germany, Czechia, Spain, Italy, Slovakia, Romania and others.

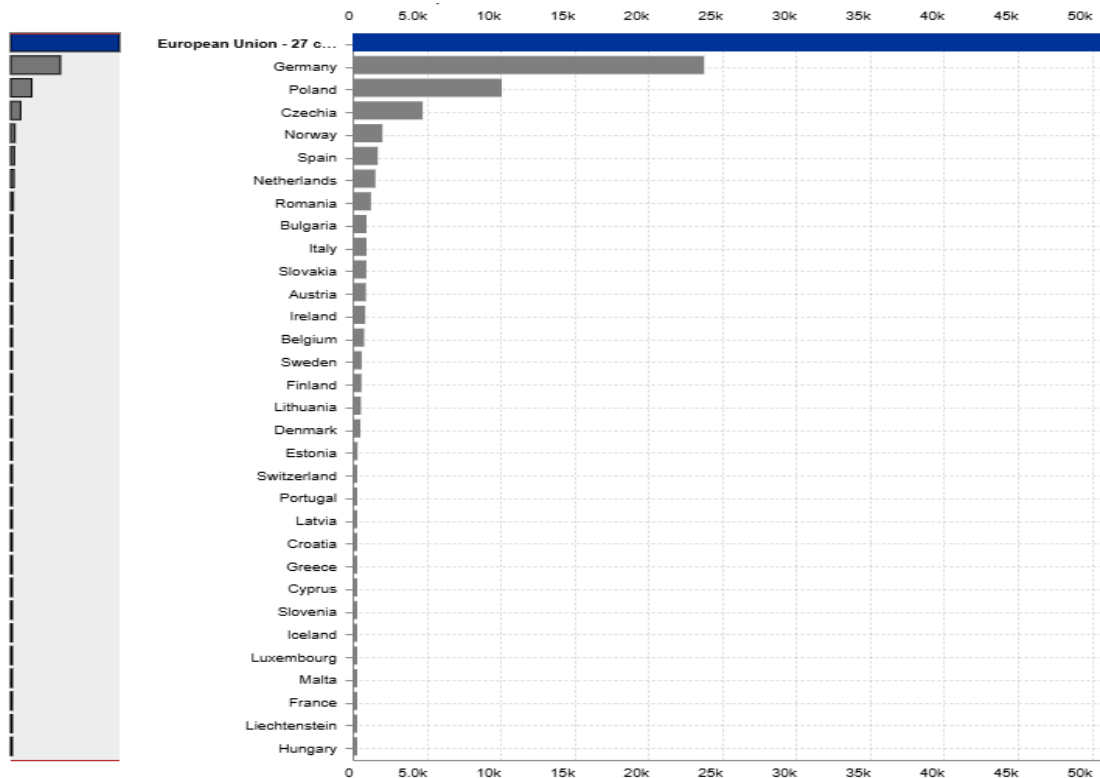


Fig. 2. Decisions granting temporary protection by citizenship with age less than 18 years old - quarterly data [4]

In the same period, it can be seen in Figure 2 more than 52000 students younger than 18 years old left the country and obtained a

temporary protection in countries like Germany, Poland, Czechia, Norway, Spain and others.

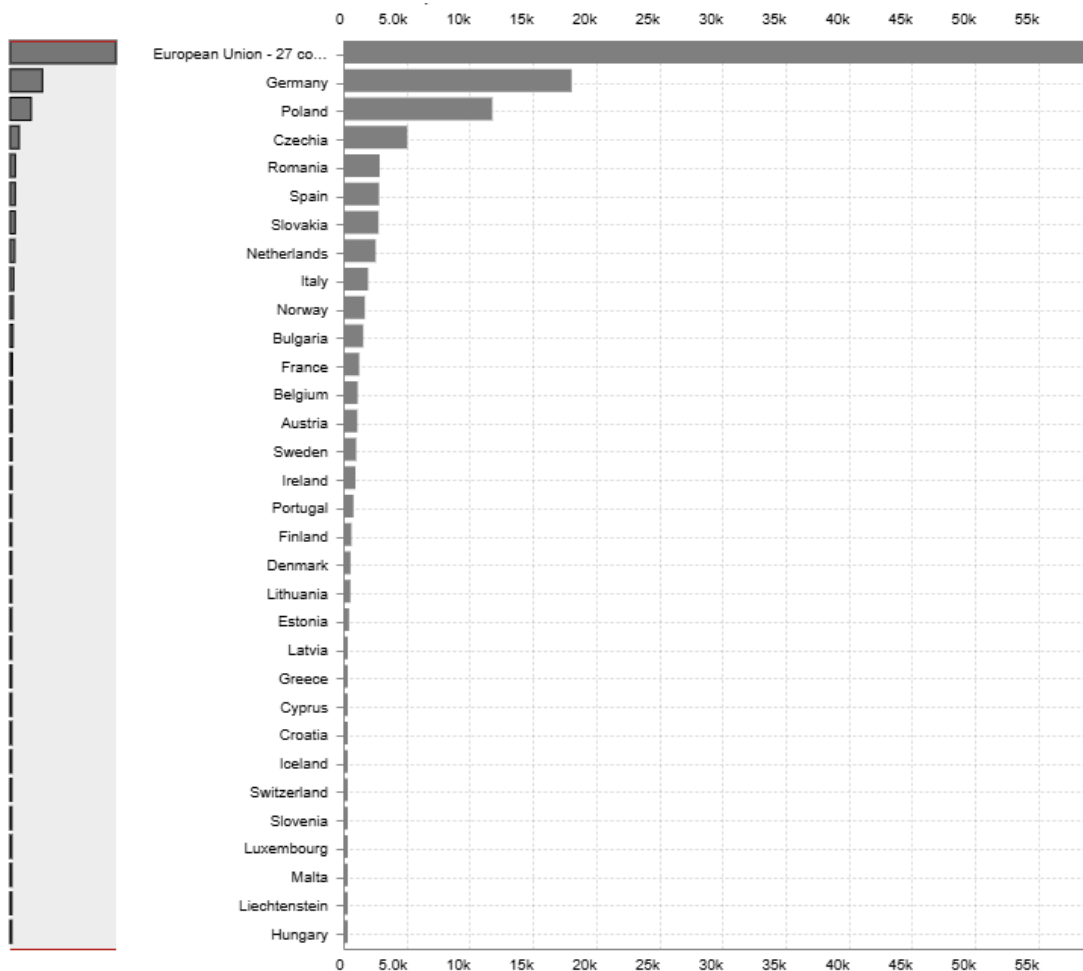


Fig. 3. Decisions granting temporary protection by citizenship with age in the range 18-34 years old - quarterly data [4]

In figure 3 it is displayed the 18-34 years old range, where more than 59000 people left Ukraine and received temporary protection from in countries like Germany, Poland, Czechia, Norway, Spain and others.

2 Online Learning in Ukrainian schools

UNICEF, in collaboration with the Ukrainian Ministry of Education and Science (MoES), has undertaken various initiatives to support education, particularly for children affected by the conflict in frontline areas in Ukraine. Notably, UNICEF facilitated an adapted early childhood education program for 20,000 young children and their parents, providing crucial in-person pre-primary support—the only available option in such areas. Additionally, recognizing the digital divide exacerbated by the conflict, UNICEF distributed 48,785 digital learning devices to students unable to access traditional in-person

learning, with a focus on displaced children, those without parental care, and those from low-income families [2] [5].

Moreover, to enhance the management of digital devices and support the national curriculum reform, UNICEF procured Mobile Device Management software, ensuring effective monitoring of device usage. Acknowledging the pivotal role of parents in facilitating home-based learning, UNICEF expanded support through online parental engagement portals, notably the NUMO platform, reaching over 4 million individuals and providing resources and guidance to over 540,000 website users, thereby fostering an environment conducive to children's learning and development despite the challenges posed by the conflict [2] .

Students in Ukraine likely utilize a range of educational platforms and apps for their learning needs as presented in table 1 [6].

Table 1. Online learning platforms in Ukraine

Name	Age Group	Description
Preschool	Preschool(age < 6)	Portal can inform parents about news and events taking place in institutions.
HYMO	Preschool(age 3-6)	ECD platform in collaboration with UNICEF. It contains free guidance for parents on how to communicate and interact with the child at age 3-6, as well as how to interact with kindergarten teachers. It also offers games and activities that will assist a child's current and future development.
Learning.ua	Toddlers Preschool Grade 1-12	Classes ranging from "toddlers", "preschoolers" and grade 1-12. Mathematics, Ukrainian, Reading, English and EIT courses.
All-Ukrainian online school	Grade 5-11	Main national education platform for distance and mixed learning for students and teachers. It is free of charge and contains materials for the 18 main subjects from grade 5-11.
iLearn	Grade 11	Free gamified platform with online training courses, tests and webinars for anyone who wants to study and successfully pass the EIT (External Independent Assessment).
LearningApps	Educators	LearningApps.org is a free Web 2.0 application, to support learning and teaching processes with small interactive modules. Those modules can be used directly in learning materials, but also for self-studying.
Aikom	Management	Automated information complex of educational management. Search function to find location of online establishments. AIKOM is an online system for collecting, storing, managing and using data in the decision-making process.

All-Ukrainian online school application

The All-Ukrainian Online School platform is a notable initiative launched by the Ukrainian Ministry of Education and Science (MoES) to provide accessible and comprehensive online education resources for students across the country. This platform offers a wide range of educational materials, including video lessons, interactive exercises, and learning

resources for various subjects and grade levels. It aims to supplement traditional classroom learning and provide additional support to students, especially during times of disruption such as the COVID-19 pandemic or other emergencies [7].

Key features of the All-Ukrainian Online School platform may include [7]:

- Curriculum-aligned content - The platform offers educational materials that are aligned with the national curriculum, ensuring relevance to the topics and subjects covered in Ukrainian schools.
- Interactive learning resources - Students can access interactive lessons, quizzes, and exercises to engage with the content actively and reinforce their understanding of key concepts.
- Accessibility - The platform is designed to be accessible to all students, including those with disabilities, ensuring inclusive education for all.
- Flexibility - With on-demand access to resources, students can learn at their own pace and schedule, allowing for flexibility in their learning journey.
- Teacher support - The platform may also provide resources and support for teachers, including lesson plans, teaching materials, and professional development opportunities to enhance their teaching practices.

Overall, the All-Ukrainian Online School platform (Figure 4) serves as a valuable resource for students and educators alike, offering a convenient and accessible way to supplement traditional classroom learning and adapt to changing educational needs [7].

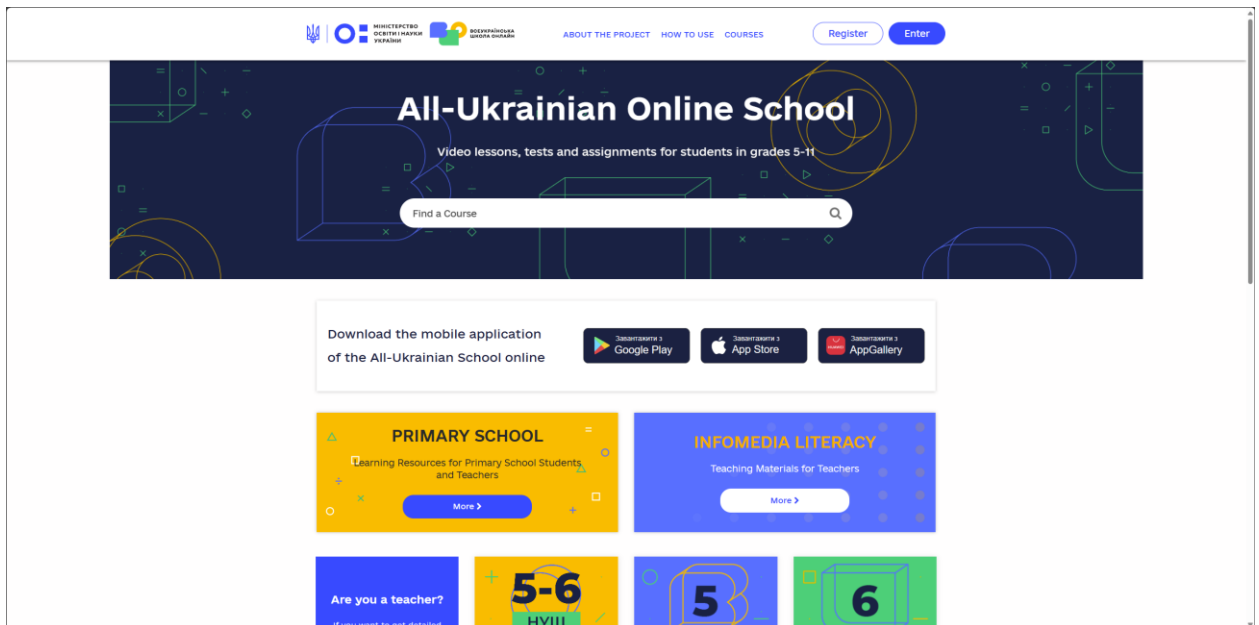


Fig. 4. All-Ukrainian online school [7]

Also, the Ukrainian students are utilizing online platforms like Zoom and Google Meet to continue their education amidst the ongoing conflict with Russia. After weeks of disruptions due to Russian attacks, schools across Ukraine resumed classes online, with teachers using virtual platforms to both teach lessons and locate missing students [8]. Despite the challenges posed by the conflict, internet connectivity has remained relatively resilient, allowing students in safer areas to continue their studies virtually. However, air raid sirens and evacuations to bomb shelters

remain frequent, disrupting the learning process. Educators are supporting students academically and emotionally, with some schools incorporating discussions about conflict into the curriculum. Students and teachers are openly discussing the war and its impact on their families and communities. Despite the difficulties, educators are working tirelessly to support students, even while living in makeshift accommodations like school-turned-bomb shelters. Remote learning has become a vital tool for students.

3 Overview of the State of Education and Science in Ukraine during the War

According to the government of Ukraine as of 26 September - 25 October 2022 they reported the following [9]:

Refugees and Casualties

- Refugees: Over 14.33 million people have fled Ukraine to other countries since February 24, 2022, according to the UNHCR as of October 18, 2022.
- Child Casualties: Since the start of the war, 430 children have been killed and 820 wounded as reported by the Prosecutor General's Office of Ukraine on October 24, 2022. This data does not include areas with active hostilities.

Damage to Educational Institutions

- Damaged Institutions: By October 21, 2022, 2,677 educational institutions have been damaged due to bombing and shelling, with 331 destroyed.

Meetings and Recovery Plans

- October 5, 2022 (Morning): Serhiy Shkarlet met with Graham Long from "Education Cannot Wait" (ECW). They identified key educational needs including the recovery of schools, shelters, school buses, modern equipment, support for the New Ukrainian School reform, teacher professional development, and mental health and psychological and socio-emotional support (MHPSS).

- October 5, 2022 (Afternoon): The Interinstitutional Working Group on Safe School Declaration discussed the current state of education under Russian aggression and the progress in implementing the National Plan on Safe School Declaration.

- October 6, 2022: Serhiy Shkarlet met with EU Ministers responsible for education and science from Estonia, Latvia, Lithuania, Czech Republic, and Poland.

- October 20, 2022: Serhiy Shkarlet met with Peter Wagner from the European Commission to discuss the renovation of damaged schools, the education of children in Ukraine and host countries, the implementation of MHPSS projects, and the provision of digital devices.

School Enrollment, Tertiary (% gross) - Ukraine

The gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Tertiary education, whether for an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

In Figure 5 it is displayed the school enrollment for the tertiary level in Ukraine. As it can be seen the school enrollment decreased from 76% in 2021 to 71% in 2022 as a reason of the ongoing conflict with Russia.

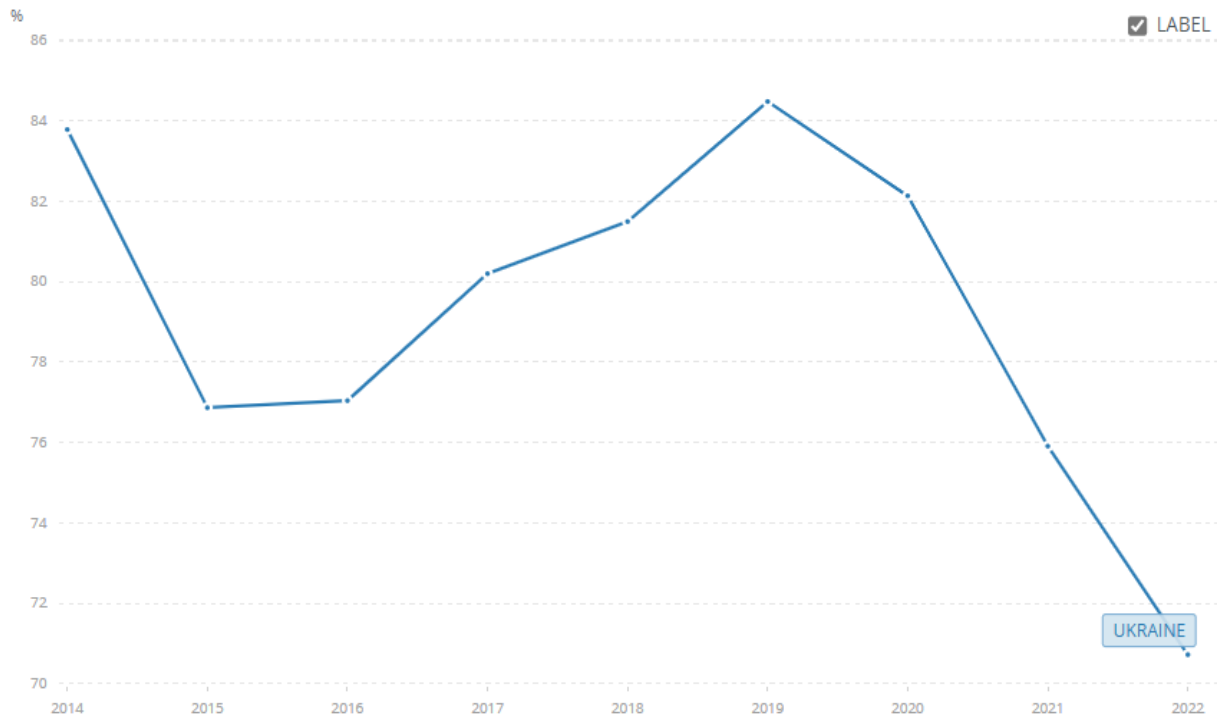


Fig. 5. The number of foreign students in Ukraine (2016-2023) [10]

Foreign Students learning in Ukraine

As it can be seen in Figure 6 the number of foreign students in Ukraine reduced with more than 33000 people between 2022-2023 and it can be attributed to the ongoing conflict in Eastern Ukraine and political instability that

made the country less attractive and safe for international students, also Ukraine has faced economic difficulties which can affect its ability to support international education programs and provide adequate infrastructure and resources for foreign students [11].

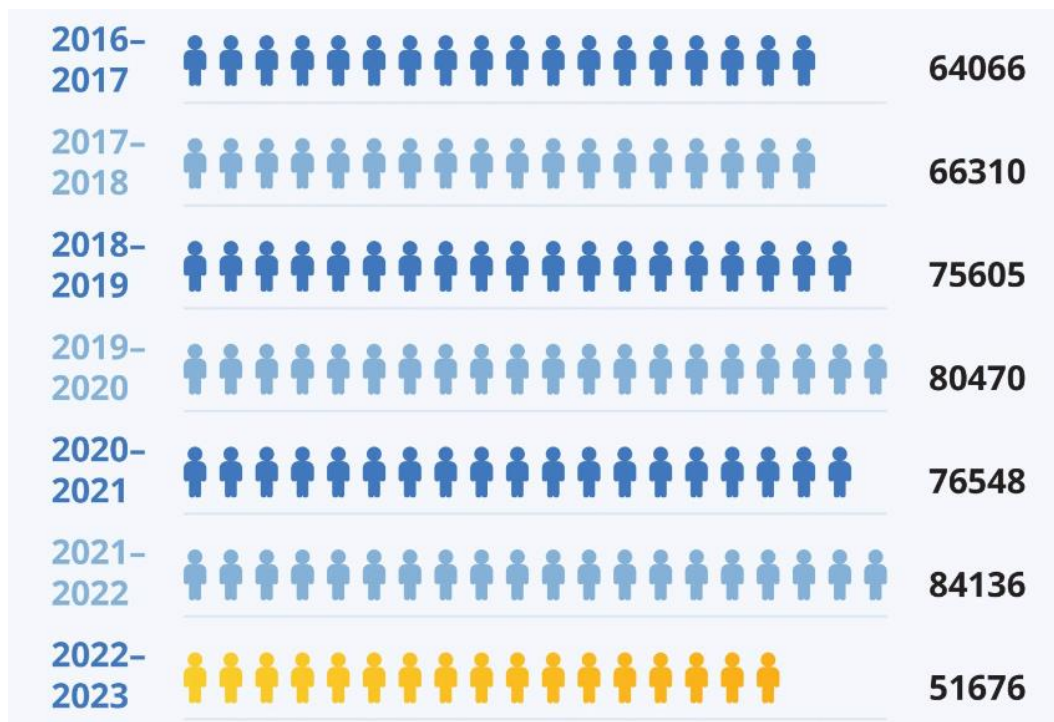


Fig. 6. The number of foreign students in Ukraine (2016-2023) [11]

4 Conclusion

In conclusion, amidst the turbulent backdrop of conflict with Russia, online learning has emerged as a vital lifeline for education in Ukraine. Despite the disruptions and challenges posed by air raids and evacuations, educators have showcased remarkable resilience, swiftly transitioning to virtual platforms like Zoom and Google Meet to ensure continuity in teaching and learning. Beyond academic instruction, these platforms have become essential spaces for emotional support, fostering discussions about conflict and providing students with a sense of solidarity and understanding.

Through online learning, students in safer areas have been able to access education despite the chaos of war, offering a semblance of normalcy and stability amidst uncertainty. However, significant challenges remain, particularly in reaching students in heavily affected regions and addressing the emotional toll of the conflict on young minds.

As educators navigate these challenges, the future of education in Ukraine remains uncertain. Yet, their dedication and adaptability underscore the resilience of the human spirit in the face of adversity. Online learning continues to serve as a beacon of hope, ensuring that the pursuit of knowledge endures even in the darkest of times.

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Rares-Constantin CIOBANU graduated from the Faculty of Cybernetics, Statistics and Economic Informatics from the Bucharest University of Economic Studies in 2017. He has a master's degree in Economic Informatics from 2019. His current research work focuses on the analysis of educational systems based on mobile solutions. Other fields of interest include mobile based systems, optimization solutions and cybersecurity.