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# Shifts in Educational Smartphone Use among Ukrainian Adolescents during Migration

## Zmiany w korzystaniu ze smartfonów edukacyjnych wśród ukraińskich nastolatków w czasach migracji

KEYWORDS
ICT, smartphone, education, adolescents, Ukrainian refugees

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ICT, smartfon, edukacja, adolescenci, uchodźcy z Ukrainy

ABSTRACT

Migration and refugee movements have posed significant challenges for Europe in recent years. Earlier waves of migrants arrived from the Middle East and Africa, and since 2022 Europe has also received war refugees from Ukraine. Young people constitute a particularly important group among these populations. This article presents findings from a diagnostic study conducted in Poland in 2023 among young refugees from Ukraine, showing that their main strategies of using smartphones have remained largely unchanged. Leisure-related purposes and practical needs (e.g., navigation and location services) continue to dominate. Nevertheless, adaptation of digital content to the resources and conditions of the host country can be observed. Smartphones are used far less for voice calls than for

SPI Vol. 28, 2025/4
e-ISSN 2450-5366

DOI: 10.12775/SPI.2025.4.004
Submitted: 05.07.2025
Accepted: 02.12.2025

internet-based activities. According to the young refugees surveyed, smartphones play a limited role in formal education but constitute an indispensable tool for informal learning. The findings may provide valuable guidance for developing effective strategies to support the social integration of young migrants. Given the high level of digitalization in young people's everyday lives, social media and educational content delivered via smartphones can prove to be particularly effective at facilitating adaptation to a new cultural environment.

## ABSTRAKT

Problem migrantów i uchodźców stał się wyzwaniem dla Europy już kilka lat temu. Kolejne fale migrantów napływały z Bliskiego Wschodu i Afryki, a od 2022 roku dołączyli do nich również uchodźcy wojenni z Ukrainy. Szczególną grupę stanowią wśród nich ludzie młodzi. Artykuł przedstawia wycinek badań diagnostycznych przeprowadzonych w roku 2023 w Polsce na grupie 128 młodych uciekinierów z Ukrainy, które potwierdzają, że główne strategie wykorzystania smartfona się nie zmieniły. Cele ludyczne i praktyczne potrzeby (np. lokalizacyjne) są na szczycie listy. Niemniej jednak obserwuje się adaptację cyfrowych treści do zasobów kraju docelowego. Telefon w dużo mniejszym stopniu jest wykorzystywany do rozmów głosowych niż do korzystania z internetu. Zastosowanie edukacyjne smartfona ma, w opinii młodych uchodźców, niewielki udział i małe znaczenie w systemie edukacji formalnej, jest on jednak nieodłącznym narzędziem edukacji nieformalnej. Wyniki badań mogą stanowić istotne wsparcie dla opracowywania skutecznych strategii integracji społecznej młodych migrantów. Biorąc pod uwagę wysoki stopień digitalizacji życia młodzieży, media społecznościowe i treści edukacyjne dostarczane za pośrednictwem smartfonów mogą okazać się niezwykle skutecznymi narzędziami wspierającymi proces adaptacji do nowego środowiska kulturowego.

## Introduction

At the beginning of the twenty-first century, the rapid development of mobile devices fundamentally transformed the "geography" of young people's everyday environments. Jean M. Twenge (2019) identifies 2007—the release of the first iPhone—as the starting point of a generation she terms iGen, for whom the smartphone is a constitutive element in shaping daily life. In the United States, between

2011 and 2017, the proportion of children under the age of eight who had access to smartphones rose to 90% (Rideout 2017). Young users are introduced to smartphones at a very early age, with the result that nearly the entire adolescent population, even in less developed countries, can hardly imagine life without a mobile phone. For migrants arriving in Europe from economically disadvantaged or war-torn regions of Africa or the Middle East, the smartphone is essential equipment (Fenton 2016). Notably, the African continent has developed its own original Android-based smartphone brand—Mara (Shapshak 2019).

## Smartphones among migrants and refugees

Research on the role of smartphones in the lives of migrants and war refugees expanded significantly toward the end of the second decade of the twenty-first century, alongside successive migration waves from Africa and the Middle East to Europe. The selfie became a symbolic marker of a new life, while the mobile phone served as both a guide and a means of maintaining contact with family members and other migrants. The literature on smartphone use among refugees is fragmented and sometimes contradictory. What appears to some as a "virtual transcultural space" may function for others as a "virtual ghetto" (Mancini et al. 2019). Numerous studies emphasize the importance of smartphones for maintaining contact with family and friends, although obstacles may arise from the need to adapt to the telecommunications infrastructure of countries encountered along migration routes. Smartphones are often described as a "virtual hub for managing relationships": both pre-existing ties and those formed during migration (Alencar et al. 2019; Pérez & Salgado 2020).

Mobile phones play an important role as navigational tools, thanks to applications that enable location tracking. They make it easier to survive along migration routes, transforming what might otherwise be chaotic journeys into more organized, deliberate, and planned experiences (Zijstra, van Piempt 2017; Alencar 2020). The significance of smartphones for migrants and refugees is underscored by the fact that they are often treated as essential as food and water. In some cases, access to a mobile phone has been decisive for survival during migration and even for saving lives (Awad, Tossel 2021).

There are relatively few studies on mobile phone use among war refugees from Ukraine, particularly adolescents. One notable contribution is the research conducted by Natalia Khvorostianov of Ben-Gurion University of the Negev in Israel, carried out in Poland in March 2022 among refugees aged 10–14. The war has led to the development of specific smartphone-use habits among young refugees. Mobile phones were used to maintain relationships, express emotions, and preserve a sense of identity. They proved useful both online and offline and served as an "emotional anchor" for young users, who often avoided distressing media content. According to Khvorostianov (2023), smartphones were also an essential tool for maintaining the autobiographical memory of young refugees.

However, research on mobile phone use among migrants and refugees has paid relatively little attention to the educational potential of these devices. This aspect has only recently begun to attract the interest of policymakers and practitioners responsible for receiving and supporting migrants and refugees in host countries.

## The smartphone as an educational tool

Assessing the educational use of smartphone applications is not straightforward. Some studies demonstrate positive educational effects, while others fail to confirm such outcomes. Undoubtedly, mobile applications have educational potential, but the extent to which this potential is realized depends on many factors, including the user's age and the type of knowledge being conveyed (Griffith et al. 2020). The use of smartphones in the classroom creates a certain tension between established patterns of technology use and traditional pedagogical practices. Digital environments strongly engage young users, and depending on the context, this engagement may either support or hinder the teaching–learning process (Selwyn, Bulfin 2016). Many studies draw attention to the risks associated with smartphone use in noting that these devices can be distracting and make it difficult for teachers to manage the classroom. At the same time, strict bans on mobile phones have been shown to increase students' anxiety levels (Gajdics, Jagodics 2022).

The presence of mobile phones alone does not automatically improve the quality of teaching and learning, but it does create specific

educational opportunities. The educational value of smartphone use depends on how the device is employed, as well as on students' age and level of maturity. Equally important is the adequate training of teachers and the development of programs that integrate curricular content with digital competencies. According to Dan Bouhnik and Mor Deshen (2014), WhatsApp was the first digital technology to enter schools without dedicated training or preparation. It was not until the COVID-19 pandemic that a large-scale influx of digital educational tools was adopted by schools, often regardless of whether students and teachers were adequately prepared. Mobile technologies also make it possible to support learning beyond the classroom without reliance on desktop computers. Learners often combine educational activities with other tasks and are largely responsible for organizing their own time. As a result, mobile learning tends to be a highly fragmented experience (Stockwell 2013).

The involvement of smartphones in education should be taken seriously, particularly given their widespread adoption and the deep immersion of the younger generation in the digital world. Smartphones can function as educational tools through the use of specially designed applications (Altameemy 2017). Their popularity, however, is determined primarily by their attractiveness as opposed to any inherent cognitive advantage (Kolak et al. 2021). Examples of language-learning applications developed as part of the MOONLITE project demonstrate that this factor must be taken into account (Read, Martín-Monje 2021). For refugee populations, where access to educational resources is often limited, mobile learning is the simplest and most accessible solution (Drolia et al. 2022). Besides, offline smartphone use is also significant, as it allows users to construct a personal space and to disengage from information that may cause emotional distress or psychological strain (Lopatovska et al. 2022).

During the cyclical academic conference *The Mobile Learning* on education through mobile devices, a number of challenges related to their use were highlighted. Emphasis was placed on the need to analyze the entire educational process from the point of view of pedagogy, not solely from a technological one. Mobile devices can be used effectively in both formal and non-formal educational contexts (Kommers et al. 2023). The situation is becoming increasingly urgent and calls for decisive and carefully considered strategies in

light of the continuing influx of refugees. The UNHCR *Education Report* (2024) warns of the risk of leaving Ukrainian children and youth who have been forced to flee their country without access to education. Similarly, an OECD report (2023) highlights the arrival of large numbers of women with children from Ukraine, for whom educational provision must be ensured. In 2025, approximately 5.1 million refugees from Ukraine were still residing in OECD countries, with the largest populations in Germany, Poland, and Spain (OECD 2025). This situation is accompanied by growing challenges related to the integration of refugees, particularly children and adolescents, into new social environments (IDAC 2025). For refugee children and youth, access to education is essential for coping with an uncertain future, achieving economic independence, and finding their place in new communities (UNHCR 2025).

## Research assumptions

At the conceptual stage of the project, it was assumed that the study would take the form of a diagnostic investigation supported by statistical analyses (Ferguson, Takane 2016; King, Minium 2003), situated mainly in the field of media pedagogy. Within the framework of the diagnostic survey method (Pilch, Bauman 2010; Skulicz 2010), a questionnaire was used as the primary research technique (Babbie 2016). To collect empirical data on mobile phone use among young people, an original survey questionnaire was developed. It consisted of two parts: (1) the first part gathered data on refugees who arrived in Poland after the outbreak of the war in Ukraine, providing a basis for analyzing the environment in which they function, as well as for identifying relationships and differentiating factors relevant to the study; (2) the second part included a set of questions concerning the communicative and educational use of smartphones by adolescents—some of them open-ended to allow for free expression in both quantitative and qualitative terms (Rubacha 2008). The Ethics Committee for Research Projects at the Institute of Psychology of the University of Szczecin determined that the research project "Smartphone Use by Young War Refugees from Ukraine" complied with ethical research standards (consent no. KB 40/2023).

The empirical study, involving young Ukrainians living in Poland, was conducted in 2023 in Szczecin (June–July; 39.0% of respondents) and Zielona Góra (October–December; 61.0% of respondents). The study group consisted of 128 participants (53 girls and 74 boys) from towns of varying sizes: up to 2,000 inhabitants (8.9%); 2,000–100,000 inhabitants (39.8%); 100,000–500,000 inhabitants (22.0%); and over 500,000 inhabitants (29.3%). The surveyed adolescents came from various regions of Ukraine, representing nearly the entire country, with the exception of the city of Sevastopol and the Autonomous Republic of Crimea. The largest groups originated from Dnipropetrovsk Oblast (19.2%), Kherson Oblast (11.2%), and Kharkiv Oblast (9.6%). More than one quarter of respondents (27.9%) reported that the area in which they had lived was not directly affected by the war. However, a substantially larger proportion indicated that they had lived under Russian occupation or had experienced intense shelling (30.3%) or intermittent shelling (41.8%). The vast majority of participants (80.2%) arrived in Poland in 2022, including more than half (58.5%) who arrived in February, March, or April of that year. The remaining respondents arrived later, in 2023 (16.5%), or prior to the outbreak of the war, in 2021 (1.7%) or in 2017–2018 (1.6%). The age distribution of respondents ranged from 10 to 20 years (10—1.6%; 11—4.7%; 12—15.7%; 13—22.0%; 14—19.7%; 15—11.8%; 16—7.1%; 17—7.1%; 18—7.1%; 19—1.6%; 20—1.6%), with the majority (90.6%) aged between 12 and 18 years.

The environment in which the respondents function—namely, telecommunications infrastructure—was also analyzed. Access to mobile phones and the extent of mobile network use were examined. Almost all respondents (98.4%) reported using their own mobile phones, including seven individuals who also indicated that they sometimes use a family member's device. Only two respondents (aged 13 and 14) did not have their own phones and relied exclusively on devices belonging to family members or someone else. Nearly half of the respondents (45.1%) reported using both Polish and Ukrainian mobile networks. One third (33.1%) used only Polish networks, 12 respondents (9.0%) used mobile networks from countries other than Poland and Ukraine, and seven respondents (5.3%) used only Ukrainian networks. A small group—10 respondents (7.6%)—were unsure which network they used. Overall, these findings indicate that

young Ukrainians residing in Poland have almost unrestricted access to mobile ICT infrastructure.

## Study results—interpretation

To determine the extent of mobile phone use for educational purposes among Ukrainian adolescents living in Poland, respondents were asked to estimate the daily time that they spent on phone calls and on using the Internet via a smartphone. Comparison of the results (Table 1) reveals a clear inverse pattern in smartphone use: the surveyed adolescents spent significantly less time on voice calls than on Internet activities. Nearly half of the respondents (45.2%) reported spending no more than one hour per day on phone calls, while 27.5% used the Internet via a smartphone for two to four hours per day, and as many as 40.8% reported spending more than four hours per day online.

The correlation coefficient between the categorized time spent on phone calls and Internet use was negative ($r = -0.880$). The calculated test statistic for the significance of the correlation was $t = -3.214$, which exceeds the critical value of the Student's $t$ distribution ($t_{crit} = -3.182$) at the significance level $\alpha = 0.05$ with (5–2) degrees of freedom. It can therefore be concluded that there is a strong and statistically significant inverse correlation between the two variables (Ferguson & Takane 2016; King & Minium 2003). Ukrainian adolescents primarily use smartphones as tools for Internet access, with voice calls appearing to be used mainly when Internet-based communication is unavailable.

Table 1. Approximate daily time spent by teenage war refugees from Ukraine on phone calls and Internet use via mobile phones (number and percentage distribution)

| Item | Approximate daily time spent by teenage war refugees from Ukraine using a mobile phone | Telephone calls | | Using the Internet on a mobile phone | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| 1 | up to 1 hour | 57 | 45.2% | 4 | 3.3% |
| 2 | from 1 to 2 hours | 28 | 22.2% | 12 | 10.0% |
| 3 | from 2 to 4 hours | 7 | 5.6% | 33 | 27.5% |

| Item | Approximate daily time spent by teenage war refugees from Ukraine using a mobile phone | Telephone calls | | Using the Internet on a mobile phone | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| 4 | over 4 hours | 8 | 6.3% | 49 | 40.8% |
| 5 | hard to say | 26 | 20.6% | 22 | 18.3% |
| | Total | 126 | 100.0% | 120 | 100.0% |

Source: Author's own study.

The respondents themselves reported numerous areas of mobile phone use. Most frequently, they indicated listening to music; this entertainment-related use of smartphones was reported by 78 respondents (23.2%). Games ranked second, with 60 responses (17.9%). Next, in order of frequency, respondents mentioned contact with friends—55 responses (16.4%); watching movies—46 (13.7%); contact with family—43 (12.8%); and voice calls—25 (7.4%). Educational use of mobile phones was selected by only 21 respondents (6.3%). Shopping was mentioned least often, by eight respondents (2.4%). Overall, it can be concluded that for young Ukrainians living in Poland, smartphones are used mainly for entertainment purposes: music, movies, and games together account for more than half of all responses (54.8%). Broadly defined communication (including voice calls and contact with family and friends) accounted for more than one third of responses (36.6%). Against this background, with educational use accounting for only 6.3%, it is difficult to speak of widespread smartphone use for educational activities. The war did not radically alter young users's smartphone-use strategies as leisure-related purposes continue to occupy a dominant position among motivations for using mobile phones.

The question concerning the use of educational platforms was answered by 86 respondents. Of the nine most popular platforms listed, respondents selected only 25 options in total (26.9%), while the remaining responses (73.1%) fell into the "other" category. The most frequently indicated platform was school.aplus, selected by 11 respondents (11.8%). This was followed by Tutlo—four responses (4.3%); Squla—three (3.2%); pipl.lyceum—three (3.2%); Babbel—two (2.2%); keiki.team—one (1.1%); and kazkozvuk—one (1.1%).

Other platforms mentioned included Classroom, Zoom, Moodle, Duolingo, and nz.ua. A substantial number of respondents (34) explicitly stated, "I don't use it," "I don't know," or "I don't use any." In addition, 14 respondents selected "other" without specifying the platform used. These findings suggest that leisure-oriented uses have become so dominant in smartphone practices that other purposes have been marginalized—particularly those requiring greater involvement and effort, such as education. This pattern may also be indicative of a more general aversion to school.

In the analyzed group of 121 young Ukrainians living in Poland, more than one third—44 respondents (35.2%)—reported that they do not use a mobile phone for distance education. Among those who do use a mobile phone for this purpose, the primary form of engagement, as declared by more than half of the respondents (69 individuals; 55.2%), involves connecting with a teacher in Ukraine. Only a small number of pupils—10 respondents (8.0%)—reported using a smartphone to connect with a teacher in Poland. Two respondents (1.6%) provided alternative explanations, stating: (1) "I don't learn online," and (2) "I use a laptop for distance education." It is difficult to determine whether smartphone use in this educational context reflects a voluntary and autonomous choice. It may instead result from pressure exerted by the Ukrainian education system or by parents, as well as from fears of losing a school year.

In response to the question "From whom do you most often learn about opportunities for online education?", a total of 139 responses were recorded. Most frequently—more than one third of responses—52 (37.4%) indicated parents, which may suggest that parents are perceived as authoritative and trustworthy sources of information. Teachers and peers ranked second and third, with similar proportions: 26 responses (18.7%) and 25 responses (18.0%), respectively. Only six respondents (4.3%) reported learning about online education from siblings. Four respondents (2.9%) indicated other sources, such as acquaintances, friends, or YouTube. Less than one fifth of respondents—26 individuals (18.7%)—reported that they do not use educational content available online and therefore do not seek information from others about online educational opportunities. This finding is consistent with the results of the previous question and

suggests that smartphone use for educational purposes may primarily stem from parental expectations.

More than half of the surveyed teenage war refugees from Ukraine—81 respondents (54.4%)—reported that the COVID-19 pandemic had the greatest influence on their use of smartphones for educational purposes. The war was mentioned as the second most influential factor, with 59 responses (39.6%) indicating that it significantly increased the perceived importance of smartphones as tools for supporting education. The remaining respondents (6.0%) expressed no opinion on this matter. These results reveal the particularly strong impact of the COVID-19 pandemic on the development of distance education, which, in the experiences of young Ukrainians, appears to outweigh the educational practices that emerged during the war.

Almost the entire surveyed population—108 Ukrainian adolescents (89.3%)—reported using their mobile phones to translate into Polish (e.g., with Google Translate). The remaining group—approximately one in ten respondents, 13 individuals (10.7%)—declared that they do not use their smartphones for translation into Polish. These findings help establish a hierarchy of smartphone uses among adolescents from Ukraine. Applications that meet leisure-related needs consistently occupy the top position, followed by those that serve immediate practical purposes.

## Conclusion

The study results indicate that the strategies adopted by young refugees from Ukraine in their smartphone use do not differ substantially from those of their peers in other countries. Leisure-related purposes remain the primary function of mobile phones, followed by practical applications used to satisfy immediate needs. Consequently, the hypothesis that the war fundamentally reoriented smartphone-use patterns must be rejected. The ability to maintain contact with loved ones has likely gained importance; however, what has changed is primarily the quality rather than the nature of this contact. Overall, the changes observed are limited. This is evident, for example, in attitudes toward distance learning: respondents indicated that the COVID-19 pandemic had a greater impact on its adoption than the war itself. In this context, it is useful to note differences

between the smartphone-use patterns of migrants arriving in Europe from Africa and the Middle East, for whom mobile phones often served as essential tools for survival along migration routes. Accordingly, ensuring constant access to a functioning phone was a priority. By contrast, immediately after crossing the Polish border, refugees from Ukraine could rely on receiving free Polish SIM cards, mobile phone top-ups, or power banks. As a result, they were able to maintain their preexisting smartphone-use habits.

Within the hierarchy of smartphone applications used to meet respondents' existential needs, education plays a relatively minor role (6.3% of responses). More than half of the respondents (51.6%) were unable to identify the educational platform they use, and 35.2% reported that they do not use a mobile phone for distance education. This points to the limited use of smartphones in formal education. At the same time, mobile devices—largely unconstrained by technical limitations—play an important role in meeting everyday needs, involving participation in informal, media-supported learning. This lifelong process often occurs without conscious awareness, which may explain why 18.7% of respondents declared that they do not use educational content on the Internet. Given the largely independent exploration of virtual environments, it is necessary to emphasize the importance of media literacy skills. Researchers studying hate speech and misinformation identify these skills as key tools in countering disinformation. In the context of hybrid warfare, Ukrainian adolescent refugees should be made aware of online bots, trolls, and fake news and educated about how algorithms—particularly on social media platforms—create information bubbles (Baron-Polańczyk 2019). This is especially important given that refugees from Ukraine constitute one of the primary targets of organized international disinformation campaigns.

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### Author contribution statements

Conception and design: Krzysztof Łuszczek, Eunika Baron-Polańczyk; analysis and interpretation of the data: Krzysztof Łuszczek, Eunika Baron-Polańczyk; the drafting of the paper: Krzysztof Łuszczek, Eunika Baron-Polańczyk; critical analysis for intellectual content: Krzysztof Łuszczek, Eunika Baron-Polańczyk; final approval of the version to be published: Krzysztof Łuszczek, Eunika Baron-Polańczyk; all authors agree to be accountable for all aspects of the work: Krzysztof Łuszczek, Eunika Baron-Polańczyk.

### Declaration of no conflict of interest

No conflict of interest.

### Declaration of funding

No funding was received.

### Declaration of informed consent for participation in the study

Informed consent was obtained from study participants. Consent was given verbally.

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