

Digital Literacy, Information Precarity, and Gendered Exclusion Among Ukrainian Refugee Women in Hungary

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This study examines how digitally literate Ukrainian refugee women in Budapest navigate information precarity within a restrictive migration-policy environment. While digital literacy is often viewed as a resource for navigating displacement, this study suggests that unstable, poorly localized, or inaccessible information continues to limit participants' ability to access services and engaging with host-country systems. Drawing on 26 semistructured interviews, using a feminist sociotechnical systems (STS) framework, the study explores how migration governance and digital infrastructures exacerbate rather than reduce exclusion. Despite their digital competence, participants remained disconnected from local institutions, having no formal support and relying on translation apps and transnational networks. The study introduces the concept of *relational information precarity* to describe how emotional attachment to Ukraine, trust deficits, and perceived marginalization hindered engagement with the host society. It also develops the term *digital sacrifice* to describe how gendered caregiving responsibilities shaped participants' access to and use of digital tools. These findings contribute to feminist STS and migration scholarship by extending critiques of techno-solutionism to the context of digitally proficient refugee women navigating integration without consistent institutional support.

Keywords: digital literacy, information precarity, refugee integration, Ukrainian refugees, migration governance, gender and technology, transnational networks, feminist STS, relational information precarity, digital sacrifice

The escalation of the conflict in Ukraine on February 24, 2022, triggered one of the fastest-growing humanitarian crises in Europe, displacing over 8 million individuals, primarily women and children, who sought refuge in neighboring countries. As a transit and destination country, Hungary has recorded approximately 6.1 million border crossings from Ukraine as of December 2024, with over 65,000 individuals registering for temporary protection, of whom more than 41,000 applied, and 38,000 received protection (Assessment Capacities Project [ACAPS], 2024; Statista, 2025). While the European Union has extended temporary protection status until at least March 2026 (Council of the European Union, 2024), research suggests that Hungary's broader refugee support infrastructure remains fragmented, particularly in relation

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to employment opportunities, legal security, and access to localized information (Letki, Walentek, Dinesen, & Liebe, 2024; United Nations High Commission for Refugees [UNHCR], 2024; Zakariás et al., 2023).

Hungary represents a particularly distinct case for examining refugee integration, given its historically restrictive immigration policies. Unlike several other EU member states, Hungary has actively opposed large-scale refugee resettlement, with political rhetoric frequently emphasizing national sovereignty and cultural homogeneity. However, the war in Ukraine forced Hungary to accept displaced individuals under the European Union's Temporary Protection Directive, creating a paradox in which a government with strong antimigration policies was required to accommodate a substantial number of refugees (Letki et al., 2024; Zakariás et al., 2023). Although Ukrainian refugees were perceived as more culturally proximate to Hungarian society than non-European migrants, this did not necessarily translate into comprehensive structured assistance. Some scholars argue that Hungary's approach reflects a broader European tendency to establish hierarchies among refugee groups, where nationality, race, and religion influence access to resources and social inclusion (Cantat, 2020; Segarra, 2024). This aligns with Chouliaraki and Georgiou (2019), who analyze how European migration governance discursively constructs certain refugees as more deserving than others, based on cultural and racial proximity. Their work highlights how media and political narratives shape public perceptions of refugees, influencing both policy decisions and social attitudes toward different migrant groups (Grajczjár, Nagy, & Örkény, 2022; Reményi, Glied, & Pap, 2023). Despite legal protections under the European Union's temporary protection framework, many refugees continue to experience institutional inaccessibility, precarious living conditions, and bureaucratic barriers that limit access to stable employment, education, and essential services (Brzozowski, 2023; MacGregor, 2023; ProAsyl, 2022).

Recent policy changes have further complicated the situation. In June 2024, the Hungarian government restricted state-funded housing for refugees, significantly reducing shelter availability for displaced Ukrainians. Although temporary protection remains in effect under EU directives, access to long-term housing, employment, and social services has become increasingly uncertain. These restrictions have strained municipalities, NGOs, and informal networks, deepening the fragmentation of Hungary's refugee support landscape (International Organization for Migration [IOM], 2023; UNHCR, 2023, 2024b). Many Ukrainian refugees now navigate these challenges with limited institutional support, often relying on informal networks and self-help groups (Brzozowski, 2023; Matuszczyk, 2022). This inconsistent policy landscape raises questions about the long-term sustainability of Hungary's approach to refugee integration and how digital literacy intersects with structural barriers in an environment with weak formal support mechanisms.

Existing research highlights information precarity as a key challenge affecting refugee populations, referring to instabilities in accessing reliable, relevant, and timely information, which can significantly impact decision making and access to essential services (Wall, Otis Campbell, & Janbek, 2017). Wall et al. (2017) conceptualize information precarity as a condition in which refugees experience disrupted social networks, exposure to misinformation, and limited control over their access to accurate information. Their study on Syrian refugees in Jordan found that, despite having mobile phones and Internet access, many refugees still struggled to obtain trustworthy and contextually relevant information, revealing a gap between digital access and meaningful inclusion. Research on refugee women in Germany shows that limited institutional support and digital infrastructure hinder the effective use of digital tools for integration (Berg, 2022, 2023). While

prior studies have addressed connectivity and access issues in shaping information precarity, less attention has been paid to how digital literacy operates in restrictive policy contexts like Hungary, where migration laws, bureaucratic complexity, and labor market exclusions present further barriers to integration.

As Chouliaraki and Georgiou (2022) argue, digital infrastructures not only mediate migration experiences but also reinforce sociopolitical hierarchies by determining who has access to critical information and who remains excluded. Their research on digital borders and migration governance provides a useful framework for analyzing how technology both enables and limits refugee agency, particularly in countries with restrictive migration policies such as Hungary. Much of the existing research on refugee digital inclusion has focused on populations from the Global South resettling in the Global North, where structured resettlement programs and government-led support systems provide formal pathways for integration (Hartmann, 2017; Imani Giglou, Buiter, Borowski, Joris, & d'Haenens, 2022; Owino & Weber, 2020; Walker, Koh, Liamputtong, & Wollersheim, 2015). However, digital literacy and refugee integration remain underresearched in Central and Eastern Europe (CEE), where restrictive migration policies and fragmented support systems present distinct barriers to inclusion (Yilmaz, 2021). This study seeks to address this gap by examining the experiences of Ukrainian refugee women in Hungary, a group that is unique not only for being European refugees in an antimigration-policy environment but also for its digital literacy within a system that is not structured to support refugee integration.

The study begins by conceptualizing information precarity to examine how digital literacy intersects with unstable and poorly localized information in refugee integration. It then applies a feminist STS framework to explore how migration governance and digital infrastructures reinforce exclusion. The analysis also addresses how social support and cultural isolation shape access to services and affect precarity. The methodology section outlines a qualitative study based on 26 semistructured interviews. The findings are presented thematically, highlighting the interplay among digital literacy, institutional barriers, and socioeconomic vulnerability. The conclusion reflects on the study's contributions to the feminist STS framework and migration research, underscoring that digital literacy alone cannot ensure integration without structural support.

Information Precarity

Information precarity refers to instability and insecurity in accessing reliable, relevant, and timely information, which significantly affects decision making, daily life, and overall well-being, especially for vulnerable populations like refugees (Wall et al., 2017; Wall, Otis Campbell, & Janbek, 2019). Information precarity involves both physical barriers, such as limited Internet connectivity, and social barriers, including language differences and distrust in information sources (Berg, 2022, 2023; Gillespie, Osseiran, & Cheesman, 2018; Wall et al., 2017). Refugees are often found to experience heightened information precarity due to precarious living conditions and restricted access to technology. Recent studies show that information precarity exacerbates challenges refugees face in adapting to new environments and integrating into host societies (Alencar, Kondova, & Ribbens, 2019; Georgiou, 2019; Kaufmann, 2018; Udwan, Leurs, & Alencar, 2020). For instance, studies in the field have established that refugees experience significant difficulties in accessing reliable information, affecting their ability to make informed decisions (Alencar, 2023; Benton, 2019; Emmer, Kunst, & Richter, 2020; Emmer, Richter, & Kunst, 2016; Wall et al., 2017).

This lack of stable and trustworthy information sources leaves them vulnerable to misinformation, stereotyping, and rumors, which can further weaken their capacity to navigate socioeconomic landscapes in host countries (Dekker, Engbersen, Klaver, & Vonk, 2018; Madianou, 2014). Thus, digital technologies play a crucial role in mitigating information precarity. Access to mobile phones and the Internet helps refugees connect with critical information and support networks essential for integration and well-being (AbuJarour et al., 2017; Andrade & Doolin, 2016; Charmarkeh, 2012; Harney, 2013). However, socioeconomic and political barriers, such as limited Internet access and high connectivity costs, are often found to hinder these benefits (Leung, 2010; Lloyd, 2014; Vernon, Deriche, & Eisenhauer, 2016; Yilmaz, 2021). Despite these obstacles, refugees develop strategies to mitigate information precarity, such as seeking free Internet access in public places, relying on community networks, and using digital tools to navigate new environments (Berg, 2022; Borkert, Fisher, & Yafi, 2018; Kutscher & Kreß, 2018). Research reveals the importance of effective policies and support systems in reducing information precarity among refugees. Providing reliable Internet access, offering digital literacy training, and ensuring the availability of accurate information can significantly enhance refugees' ability to integrate and thrive (Alam & Imran, 2015; Alencar, 2023; Baban, Ilcan, & Rygiel, 2017; Georgiou, d'Haenens, Zaki, Donoso, & Bossens, 2024; Walker et al., 2015). Tailored interventions based on the specific needs of refugee groups are found to be critical for improving outcomes (Echterhoff et al., 2020; Peisker & Tilbury, 2003).

Sociotechnical Systems

Building on the discussion of information precarity, this section draws on an STS framework to examine how digital infrastructures shape refugee women's access to information, mobility, and socioeconomic participation. These infrastructures are not neutral but are embedded in political and institutional systems that regulate access and can reinforce exclusion (Berg, 2022; Chouliaraki & Georgiou, 2019, 2022; Orlikowski & Barley, 2001). Wyatt (2008) critiques deterministic views of technology, emphasizing that digital tools function within broader systems of power, rather than inherently promoting inclusion. Feminist STS scholars extend this critique, showing how digital infrastructures reproduce structural inequalities, particularly through migration governance and labor markets (Sawyer & Jarrahi, 2014; Wajcman, 2010). Technologies are socially shaped and are entangled with institutional hierarchies and gendered care responsibilities. These dynamics become especially visible in contexts of displacement (Atenas et al., 2022).

Feminist postcolonial perspectives further highlight how technologies operate within global circuits of power shaped by colonial histories and gendered hierarchies (Pollock & Subramaniam, 2016). In migration governance, digital tools not only mediate access but also determine who is rendered visible or deserving within humanitarian systems. This challenges assumptions of neutrality and illustrates how infrastructures often function as tools of sorting and exclusion. As Atenas et al. (2022) argue, a feminist STS lens enables deeper analysis of how data systems encode inequality across race, gender, and class.

In migration contexts, technologies such as biometric ID, algorithmic asylum processing, and surveillance are often framed as solutions, yet they frequently seem to intensify precarity and reproduce barriers to services and rights (Madianou, 2019; Sandvik, 2018). Feminist STS also draws attention to gendered constraints on digital participation, including caregiving roles, social norms, and unequal access

to devices and connectivity (Brück, Hanmer, Klugman, & Arango, 2024; Hartmann, 2017; Schelenz, 2023). These dynamics are especially evident in refugee settings, where women's digital practices are shaped by both structural exclusion and household negotiations (Alencar & Camargo, 2023). While some research highlights how refugee women use digital platforms for learning and working, other studies show that restrictive migration policies and exclusionary labor markets limit how digital literacy translates into participation (Dahya & Dryden-Peterson, 2017; Dahya, Garrido, Wedlake, Yefimova, & Iqbal, 2023; Kainat, Eskola, & Widén, 2022). Thus, digital literacy should be understood as socially and structurally mediated, not as an autonomous enabler of inclusion (Lloyd, Lipu, & Kennan, 2010; Potocky, 2021).

In structured resettlement systems, digital literacy is often integrated into employment and service pathways (Dahya & Dryden-Peterson, 2017; Owino & Weber, 2020). Hungary, by contrast, illustrates how fragmented governance and limited institutional support leave refugees dependent on informal and transnational networks (Letki et al., 2024; Zakariás et al., 2023). Feminist STS highlights how digital participation is shaped by structural barriers and policy environments, where infrastructures often reinforce exclusion in the absence of institutional support. These dynamics are particularly visible in migration contexts, where STS mediate access, visibility, and legitimacy (Berg, 2022, 2023; Chouliaraki & Georgiou, 2022; Sandvik, 2018). In related work, I introduced the concept of digital othering to capture how digital exclusion reinforces social marginalization in refugee integration processes (Berg, 2025), which this study expands in a different context. This offers a clear insight into how a feminist sociotechnical systems (STS) framework can influence refugee inclusion and exclusion by mediating access, visibility, and legitimacy.

Social Support

Alongside digital literacy and STS, social support represents a foundational dimension of refugee integration. While digital tools can facilitate adaptation, research shows they are insufficient without strong social and emotional networks. Persistent digital inequalities, even among those with digital competence, continue to limit integration, particularly when STS lack institutional scaffolding and supportive interpersonal structures (Hannides, Bailey, & Kaoukji, 2016; Lloyd, 2014; Lloyd, Kennan, Thompson, & Qayyum, 2013; Tsatsou, 2022). Social support plays a critical role in navigating integration challenges, whereas cultural isolation has been shown to heighten psychological distress and undermine resettlement efforts (Löbel, Kröger, & Tibubos, 2021). Emotional, instrumental, and informational support can serve as protective factors that can help mitigate the adverse effects of displacement (Cohen & Wills, 1985; Correa-Velez, Gifford, & Barnett, 2010). Women refugees in particular face additional challenges due to gender-specific barriers and isolation (Forani, 2020; Liebig & Tronstad, 2018). Research consistently demonstrates that the development of social capital, particularly through bonding and bridging networks, is essential for refugees, as these networks facilitate access to critical resources and contribute to a sense of belonging within host societies (Ager & Strang, 2008; Goodson & Phillimore, 2008; Portes, 1998). Empirical studies further highlight that the creation of supportive environments and social networks is key to addressing the structural and cultural barriers that often impede integration, thereby playing a crucial role in enhancing refugees' socioeconomic mobility and community participation (Cheung & Phillimore, 2017; Coleman, 1988). Building on this understanding, it becomes evident that cultural isolation further compounds the challenges refugees face, especially among women. Research underscores that refugee women often face a "triple disadvantage" in the labor market, encountering barriers related to gender, migration status, and socioeconomic exclusion.

These factors restrict their employment opportunities and limit access to social networks, mentorship, and financial independence (Banulescu-Bogdan, 2020; Liebig & Tronstad, 2018). Limited access to strong social and professional networks can further constrain refugee women's economic participation and long-term stability (Cheung & Phillimore, 2017; Kainat et al., 2022). Research emphasizes the need for targeted support services that address gender-specific barriers in resettlement. These include mentorship, childcare, job placement assistance, and language training. Such interventions can be most effective when tailored to the specific challenges refugee women encounter throughout the integration process (Fakih, 2017; Hillmann & Toğral Koca, 2021; Kainat et al., 2022; Tissot & Zimmer, 2021). Thus, while digital literacy can empower refugees by facilitating access to information and maintaining social connections (AbuJarour, 2020; Imani Giglou et al., 2022), it can remain insufficient without strong social support systems (Morrice, 2007; Seethaler-Wari, 2018; Strang & Quinn, 2021).

Refugees are frequently found to struggle to navigate bureaucratic procedures due to language barriers and unfamiliarity with local systems (Pearlman, 2017; Rozakou, 2017; Topal Demiroğlu, 2024). Social support from community organizations often becomes vital for effective integration (Stewart, 2014). Services related to legal status, housing, health care, and child care become crucial for successful integration (Crawford, Kapisavanhu, Moore, Crawford, & Lundy, 2023; Prasad, 2017). Formal and informal support networks, including community organizations, at times bridge the gap between refugees and necessary services (Francis & Yan, 2016; Mattessich, Bartholomay, & MartinRogers, 2017). Social support networks, as shown by Kosyakova and Kogan (2022), are indispensable for navigating employment and education systems, ultimately enhancing successful integration and mobility. Thus, social support remains fundamental for refugee integration, particularly in navigating employment and bureaucratic systems.

Methodology

This study employed a qualitative design based on 26 semistructured, open-ended interviews with Ukrainian refugee women in Budapest, conducted in the winter of 2023. The flexible format allowed participants to share detailed narratives about their digital practices and integration experiences, enabling unanticipated themes to emerge. Participants, ages 19–43, had resided in Hungary for 6–18 months and had diverse professional backgrounds, including administrative work, elderly care, teaching, and marketing. Recruitment began through personal networks and continued via snowball sampling, a technique often used to reach marginalized populations such as refugees (Biernacki & Waldorf, 1981; Noy, 2008). As a researcher with prior experience in refugee and migration studies, I remained reflexively aware of my positionality throughout data collection and analysis.

Informed verbal consent was obtained in Ukrainian, Hungarian, or English, based on participant preference. Interviews, lasting 45–60 minutes, were conducted in accessible locations such as cafés or communal areas within refugee accommodations, chosen or approved by participants to ensure comfort and privacy. Seven interviews were conducted in Ukrainian, three in Turkish, and the remainder in English. Due to fieldwork constraints, two previous participants assisted with interpretation during some Ukrainian interviews. They were briefed in advance regarding confidentiality, neutrality, and accuracy. Their prior familiarity with the study supported communication and helped build trust. All participants, including those assisting with interpretation, were compensated for their time. Fourteen participants declined audio recording. In these cases,

detailed handwritten notes were taken and reviewed with the participants to ensure accuracy. A professional translator was later consulted to verify key translated excerpts, ensuring conceptual clarity and consistency in participants' meaning across languages. No identifiable information was shared during this process, and only anonymized segments were reviewed. Although the initial interview questions focused on digital literacy and information precarity, many participants organically shifted to broader challenges such as housing instability, social isolation, and bureaucratic obstacles. This flexibility enabled a more nuanced account of participants' lived experiences. Data were analyzed using reflexive thematic analysis (Braun & Clarke, 2006, 2019). Initial coding followed an open coding process, after which related codes were grouped using axial coding. Selective coding was then applied to refine final themes, which included digital literacy, social support, and socioeconomic barriers (Corbin & Strauss, 2014). In this study, digital literacy refers to the use of digital tools to access, evaluate, and manage everyday information. Information precarity refers to unstable access to timely and relevant information required to navigate social and bureaucratic systems. Thematic saturation was reached when no new themes emerged during coding.

Findings

This section presents the core themes that emerged from interviews with Ukrainian refugee women in Hungary. While the study initially focused on digital literacy and information precarity, the data revealed broader and more interconnected challenges. Four key themes emerged: digital literacy, information precarity, social support, and socioeconomic barriers. Together, these illustrate the layered difficulties participants encountered during integration. The analysis highlights how digital access intersects with broader structural conditions, showing that digital literacy alone is insufficient without adequate social and institutional support. These themes reflect the overlapping cultural, economic, and policy-related barriers that shaped participants' everyday experiences.

Digital Literacy and Everyday Adaptation in Displacement

Digital literacy extends beyond the basic use of computers, smartphones, and the Internet. It also involves critical engagement with digital environments, allowing individuals to evaluate, adapt, and communicate information in ways that reflect their sociocultural contexts (Martin, 2008; Pangrazio, 2016; Van Deursen & Van Dijk, 2014). These skills can become particularly important for displaced populations, as digital tools often support access to services, communication, and information in unfamiliar environments (Lloyd et al., 2010, 2013). However, structural barriers such as institutional exclusion and sociopolitical constraints may shape how effectively refugees are able to apply these skills in daily life (Berg, 2023; Costello, Culbertson, Dimarogonas, & Lanna, 2019; Ragnedda & Ruiu, 2020).

Participants in this study appeared to demonstrate relatively high levels of digital literacy, shaped in part by their prior professional experience in fields such as administration, health care, marketing, and education. Many had used computers and digital platforms in their work. Beyond professional use, most were active on social media, maintaining at least two accounts across different platforms. However, it was their routine use of digital tools during displacement that most clearly reflected their adaptability. One of the most frequently mentioned tools was the Google Translate app, which participants described as essential for managing everyday interactions. As one 28-year-old participant explained:

Google Translate helps me with almost everything, from talking to volunteers, doctors, or buying groceries. I am grateful to be here but it is not easy, a lot of things to figure out. We are too many women here. I can't blame the people.

The reliance on technology, one could argue, highlights the participants' adaptability but also underscores their isolation in the absence of social support. None of the women interviewed spoke Hungarian, and the language barrier made navigating daily tasks difficult. As a result, the translation app became a vital lifeline, allowing them to communicate in various settings. Sandvik (2018) argues that data-driven technologies in humanitarian contexts are not neutral but can function as sorting mechanisms that influence who is rendered legible and deserving of support. In this context, translation apps such as Google Translate may not only serve as tools for communication but also operate as sociotechnical interfaces that mediate access to assistance and information. Their use among refugee women highlights both the women's adaptability and the institutional gaps they encounter. Translation, in this sense, is not purely linguistic but is also infrastructural, shaping who is understood, who is included, and who may remain excluded from systems of care and protection.

A 19-year-old university student, continuing her education remotely, described how she relied on the app during interactions where Russian was not understood: "When I am going somewhere alone, I can sometimes speak to older people who often can speak Russian. But most of the time, I rely on Google Translate."

Other participants expressed similar dependence on translation tools, suggesting that smartphones played an important role in navigating unfamiliar environments and accessing services. While all participants owned smartphones, only a few had access to laptops, and this disparity was particularly evident among those pursuing remote education. A 21-year-old student explained how the family's single laptop was prioritized for her younger siblings:

It is more important for my younger siblings to use the computers. I don't need the screen as much; I just *listen* to the professor. They are small, and it's not good for their eyes. Learning for them is more visual.

These accounts suggest that gendered household expectations shaped access to technology. This pattern reflects what this study refers to as *digital sacrifice*, a form of negotiation in which women deprioritize their own digital needs to support others, often at the expense of their own educational continuity.

Another 19-year-old participant explained how she adapted her schedule: "I mostly do my assignments in the late afternoon or evening so my younger siblings have priority to do their homework first."

While these strategies demonstrate resilience and digital competence, they also point to broader structural inequalities. Smartphones provided access, but lacked the functionality needed for tasks such as research and academic writing. The reliance on shared technology within households illustrates how digital access is shaped not only by device ownership but also by caregiving responsibilities, housing constraints,

and family dynamics. Even when tools were available, participants' use was often shaped by necessity rather than choice, reflecting the gap between digital literacy and meaningful, equitable access.

Relational Information Precarity and Transnational Media Dependence

Although participants demonstrated digital proficiency, they still experienced a form of information precarity distinct from the more commonly cited issues of access or connectivity (Berg, 2022; Wall et al., 2017). In this case, precarity stemmed from a strong reliance on transnational media and personal networks from Ukraine, combined with limited local support for navigating Hungarian information systems. This reliance was shaped by unfamiliarity with, and distrust of, Hungarian news outlets. Rather than lacking access, participants struggled to engage with an unfamiliar media environment where trust in local information sources was low. As Lloyd et al. (2013) and Georgiou (2019) suggest, refugees often turn to familiar media to cope with disorientation in new environments and navigate complex systems of visibility and recognition. Many participants described using Telegram to stay updated on events in Ukraine and maintain emotional and cultural connections. One participant shared:

I use Telegram to stay connected with people in Ukraine and to get updates on what is happening in my city. Our national news is also not showing the truth, so most of us rely on our family and friends to know what is happening.

These accounts suggest that personal networks often replaced both Ukrainian and Hungarian media as primary sources of information. Concerns about censorship or delay in official Ukrainian outlets led participants to rely more heavily on interpersonal sources. One 40-year-old participant summarized: "For knowing what is happening on the ground, Telegram is the best way. Everything else we don't trust."

This tendency to favor familiar networks over local media reveals a form of information precarity that is not rooted in digital access but emerges from emotional and cultural detachment from the host society. What emerges here might be described as relational information precarity, a form shaped by trust deficits, emotional attachments to the country of origin, and a perceived lack of belonging in the host context. This preference appeared to limit participants' engagement with Hungarian news, which could otherwise support their integration into local society.

When asked whether they accessed Hungarian news, no participants reported familiarity with national outlets. This unfamiliarity was linked to the perception that Hungary, under its current leadership, was unsupportive of Ukraine. As one participant explained: "If I need to know what Orbán is doing and what position he is taking, I need to get this from Ukrainian news."

Such comments reflect the belief that Ukrainian sources were more reliable, even when the topic concerned Hungary itself. This trust gap, paired with a sense of being merely tolerated, reinforced participants' disengagement from local information. As one 34-year-old woman explained: "I am not familiar at all with Hungarian news. I'm also not sure if it would be any help for us. They seem to tolerate us but don't really want us here."

These reflections highlight the complex relationship between digital literacy and local information engagement. While technically capable, participants remained disconnected from crucial local knowledge. This disconnection was shaped not by lack of access, but by affective and cultural ties to Ukraine, skepticism toward local institutions, and a sense of temporariness in their displacement. The concept of relational information precarity helps capture how refugees, even when digitally literate, may remain excluded from host-country knowledge systems due to emotional, social, and political distance.

Beyond Digital Skills: Structural Barriers to Refugee Inclusion

Although participants demonstrated digital proficiency, they encountered persistent barriers to securing housing, accessing education, acquiring language skills, and finding employment. These challenges reveal the limitations of relying on digital tools alone to navigate complex bureaucratic systems, especially in the absence of institutional or social support. While digital platforms supported everyday tasks and basic communication, they were not a substitute for structured guidance or formal assistance.

Prior research has emphasized the role of digital access in supporting refugee integration (Berg, 2022, 2023), but this study suggests that digital literacy does not necessarily mitigate structural exclusion. Even with strong technological skills, participants struggled to access essential services due to the lack of support networks and institutional infrastructure. As Méndez-Domínguez, Carbonero Muñoz, Raya Díez, and Castillo De Mesa (2023) argue, digital inclusion is most effective when embedded within STS responsive to the needs of marginalized populations. Housing instability was a major concern, with many women living in charitable hostels with one- or two-year limits. A recent government decree (June 2024) further restricted eligibility for state-funded shelter, increasing the risk of displacement (Human Rights Watch, 2024). As one woman shared:

We are reaching the maximum time we can stay at the hostel as a family. I really do not know where we could go next. We came to Hungary because it is close to our hometown. My elderly parents stayed behind, and I always feel better being closer to them.

Educational access posed further challenges. While tools like Google Translate and Telegram supported information seeking, they were insufficient for navigating school enrollment processes. Many women described limited school availability and uncertainty about alternatives: "I want my child to enroll in a local school, but apparently, the one near our accommodation is full. I don't think there are other options available other than for my son to continue attending school in Ukraine remotely."

Similar challenges were reported in accessing employment and language training. Participants found bureaucratic systems overwhelming, even when using translation and search tools. One participant explained: "Most of us are really good at using our phones to help ourselves with daily tasks, but when it comes to dealing with paperwork and applications, it's just too much."

These experiences were often shaped by cultural isolation and a lack of local connections. Interactions with Hungarian residents were limited, usually restricted to brief exchanges with hostel staff. Without local networks, participants turned to informal volunteer groups or personal contacts. One woman

noted: "I don't know anyone from Hungary other than the staff that works at the hostel. Maybe that might change when I learn the language and find a job."

Though Telegram and similar platforms helped maintain connections to transnational networks, they also reinforced cultural detachment from the host society. Udwan et al. (2020) argue that while digital media can support resilience, it can also reinforce social separation. One woman explained how this detachment manifested in public interactions: "Even when I use Google Translate, people don't always have the patience to wait while I type or speak into the app. Sometimes, they just walk away, and it makes me feel even more alone."

Another woman described the limitations of online support when dealing with bureaucratic issues:

It is very difficult to find the right help online. I can use Google and translation tools, but I feel there is still not enough information available. Most of the resources I find are from charities, but not from government bodies.

These findings echo work by Dahya, Dryden-Peterson, Douhaibi, and Arvisais (2019), who demonstrate that while digital tools can support refugee women's professional development, their impact is constrained by gendered labor roles and limited institutional support. Although their study is situated in a different context, similar dynamics were observed here. Participants had to manage both digital and caregiving responsibilities in environments lacking formal infrastructure. From a feminist STS perspective, these accounts suggest that digital technologies are not inherently empowering, but function within STS that reflect broader political, institutional, and gendered inequalities.

These findings underscore that digital literacy may offer useful tools for daily life but cannot replace formal systems of support. Without institutional assistance, language training, and structured integration programs, refugees remain at risk of prolonged exclusion. As Tsatsou (2022) argues, digital inclusion must be embedded in broader frameworks. Technology alone cannot overcome the socioeconomic barriers to refugee integration. The experiences of women in this study illustrate that while digital tools enabled adaptation, they did not eliminate the structural obstacles shaping access to housing, education, and employment.

Discussion and Conclusion

This study examined how digitally literate Ukrainian refugee women in Hungary navigate information precarity, institutional exclusion, and socioeconomic barriers within a restrictive migration-policy environment. While participants demonstrated adaptability and digital competence, they continued to face challenges in accessing housing, education, employment, and public services. These difficulties were shaped not by a lack of digital skills, but by fragmented support systems, limited institutional guidance, and cultural isolation. This study builds on prior research that introduced digital othering as a form of exclusion rooted in limited infrastructure and marginalization in the German context (Berg, 2025), showing how such dynamics persist even in better-connected but unsupported settings. Participants' reliance on Google Translate, Telegram, and transnational networks suggests that digital tools played a central role in daily adaptation. However, these technologies did not fully compensate for the absence of structured integration

support. Despite participants' ability to access and engage with online information, they remained disconnected from local knowledge systems. This disconnection was not primarily technical but reflected limited trust in Hungarian institutions, emotional ties to Ukraine, and a broader sense of temporariness. These dynamics point to what this study refers to as *relational information precarity*, a form of exclusion shaped by emotional attachment, trust deficits, and perceived marginalization from the host society. The study also found that gendered norms and caregiving responsibilities influenced participants' digital practices. Many women adjusted their own use of technology to accommodate the needs of others in their household. This study uses the term *digital sacrifice* to describe how women deprioritized their digital access to support others, often at the expense of their educational goals. These patterns suggest that digital engagement is not only shaped by access or competence but also by household roles, cultural expectations, and infrastructural constraints.

Taken together, these findings contribute to feminist STS and migration research in several ways. First, the study explores the digital practices of a refugee group navigating integration in a policy context with limited formal support. Second, it shows how translation tools may operate as informal infrastructures, offering basic navigation while reinforcing the absence of institutional guidance. Third, it develops the concept of digital sacrifice and introduces the term *relational information precarity* to describe how digitally literate refugees can remain excluded from local systems due to emotional, social, and political distance. These findings suggest that digital inclusion must be understood as relational and institutional, rather than solely technical.

This study has several limitations. It focuses on a small, digitally proficient group of women and does not reflect the experiences of older refugees or those with limited access to technology. The research is also geographically specific to Budapest and may not represent experiences in other regions of Hungary or beyond. Future studies could examine how different refugee groups engage with digital technologies across varying integration regimes and national policy environments. While digital tools offered participants useful resources for managing everyday challenges, they did not eliminate the structural barriers that shaped the participants' integration. A feminist sociotechnical approach helps illuminate how technologies, even when enabling, operate within broader systems of inequality. Digital literacy should be understood as one element in a larger ecosystem of integration. Without supportive policy frameworks that transform competence into opportunity and foster institutional trust, even digitally skilled refugees may remain excluded from meaningful participation.

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