The International Journal of Information, Diversity, & Inclusion

Technology, Power, and Social Inclusion: Afghan Refugee Women's Interaction with ICT in Germany

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Abstract

Afghan refugee women settle in Germany to escape persecution by militant groups and social marginalization in Afghanistan, among other things. They face challenges in Germany, such as language barriers, demanding bureaucratic requirements from German administrations, and discrimination. Academic and public discourses promote the information and communication technologies (ICT)-enabled social inclusion of refugees into the host society. ICT is widely seen as an essential tool to support refugees. Against this backdrop, this paper presents a focus group study with 14 Afghan refugee women in Germany to understand their experiences with technology: How do Afghan refugee women in Germany experience ICT? What structural factors influence their interaction with technology? What are the design features in an application that can support their settlement in Germany? This paper uses a critical perspective inspired by Black feminist theory to foreground the dynamics of power in Afghan refugee women's experiences with ICT. The analysis reveals significant barriers to the participation of Afghan refugee women in German digital society, like digital illiteracy and the need for safety and privacy, making accessing technology difficult. Designs of ICT that may benefit Afghan women offer audio messages instead of text, real-time assistance, intuitive commands, and registration without an email address. Apart from the analysis of Afghan refugee women's interaction with technology in German society, this paper reflects on the German migration management infrastructure and its potential to adapt more to the communication practices of refugees, including offering in-person services for Afghan refugee women.

Keywords: Afghan women; ICT; power; refugees; social inclusion

Publication Type: research article

Introduction

At the beginning of 2022, Germany hosted around 240,000 asylum seekers from Afghanistan (Statistisches Bundesamt, 2022). Asylum seekers or refugees are people who leave their home country because they have a "well-founded fear"(p. 3) of being persecuted for their race, religion, nationality, or politics (UN Refugee Agency, 2023).[1] Afghan women face oppression in Afghanistan due to political, economic, and cultural conflicts (Wörmann, 2003). Once they arrive in Germany, Afghan asylum seekers face language barriers, discrimination, and demanding bureaucratic requirements such as responding to German-language letters from various German administrations (Abdelhady et al., 2020; Die et al., 2023). To support refugees in overcoming these challenges, administrations and non-profit organizations (NGOs) have teamed up with

ISSN 2574-3430, https://jps.library.utoronto.ca/index.php/ijidi
DOI: 10.33137/ijidi.v7i3/4.40292

researchers to explore the potential of information and communication technologies (ICT) to foster the social inclusion of refugees.

Social inclusion can be understood as the possibility for "individuals, families, and communities" to "fully participate in society and control their own destinies" (Warschauer, 2003, p. 8). One example of an ICT project in Germany is the app "Integreat," which was developed to provide information to refugees (Schreieck et al., 2017a). While such solutions carry potential benefits for newcomers, they can also inhibit use due to the influence of cultural factors and social inequalities. For instance, refugees may lack the knowledge and skills of navigating ICT in the first place (Alam & Imran, 2015; Sabie & Ahmed, 2019; Warschauer, 2003). Therefore, it is vital to understand how social factors and power relations affect refugees' interaction with ICT and how solutions can be designed to their advantage.

This paper presents findings from an empirical study with 14 Afghan refugee women about their attitudes toward existing technologies and visions for future innovations that can support their social inclusion in Germany. The study's findings answer the following questions: How do Afghan refugee women in Germany experience ICT? What structural factors influence their interaction with technology? What are the design features in an application that can support their settlement in Germany? Qualitative data from four focus group workshops held between March and June 2022 will be analyzed, including field notes, audio recordings, transcripts, drawings, and photographs.

For a critical analysis of the findings, the paper draws on Black feminist theory, which theorizes social inequities and societal power relations (Collins, 2000; Guy-Sheftall, 1996).[2] The theory is increasingly applied to the study of technology, as it offers insights into the experiences of marginalized groups with mainstream technology designs (Benjamin, 2019b; Noble, 2016, 2018). This paper applies Black feminism as a way to extend its contemporary engagement with technology design to new cultural and social contexts, namely the case of Afghan refugee women in Germany. The application of the theory in this paper showcases its strengths in understanding complex configurations of power in different contexts.

While this research does not claim that Afghan women are Black women or that their experiences are the same, the analytical methods of Black feminism are well suited to understanding power dynamics at play in Afghan refugee women's interactions with technology. This is because Black feminism looks at structural experiences (i.e., experiences beyond an individual's lived reality and capture broader societal dynamics). In the case of Afghan women, although they are situated in a different cultural, religious, and social context than Black American women, they too share experiences of marginalization that transcend individual experiences (Shahalimi, 2022a, 2022b). My application of Black feminism and my interpretation of Afghan refugee women's experiences is limited, though, by my background as a White German citizen. Interpretations are made from an outsider's perspective, and participants' lived reality cannot be fully grasped. The ethical implications of my position are considered in the methodology section.

Previous research on using ICT for social inclusion is scattered across various fields, including ICT for Development (ICT4D), Human-computer Interaction (HCI), Migration Studies, Media and Communication Studies, and Information Systems. Previous works relevant to this paper study the use of ICT by refugees and the development of apps and services for social inclusion (Berg, 2021; Z. Chen et al., 2020; Fisher, 2018; Patil, 2019; Schreieck et al., 2017a; Schreieck, 2017b). In these works, ICT is often presented as an enabler of refugees' social inclusion in a techno-

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
DOI: 10.33137/ijidi.v7i3/4.40292

determinist way (e.g., Galletta et al., 2019; Schreieck et al., 2017a). This work challenges this notion and argues that ICT can be a barrier to the social inclusion of Afghan refugee women due to their experiences of marginalization and biased design. Digital illiteracy, concerns over safety, and distrust of online communities limit Afghan women's participation in German digital society. The design of applications can be exclusionary if it consciously or unconsciously reproduces the needs and preferences of the majority society rather than considering the experiences of the marginalized.

This paper makes three contributions to the academic and practitioner community engaged with ICT for social inclusion. Firstly, it presents design features proposed by study participants for an ICT solution that could offer orientation to Afghan refugee women in Germany. This paper underlines the importance of centering marginalized people in design discussions to understand their lived reality, as proposed previously (Costanza-Chock, 2020; Erete et al., 2018). Secondly, this paper reflects on the broader infrastructural conditions for migrants' and refugees' integration in Germany. The German migration management system is designed to increasingly rely on digital tools, which creates barriers for low-literate groups of refugees. Expanding in-person services instead of developing another app may give Afghan refugee women a real opportunity to become members of German society. Thirdly, this paper calls to rethink the taken-for-granted benefits of ICT-based social inclusion, as presented in Galletta et al. (2019).

Contextualization: A Black Feminist Perspective on Technology, Power, and Social Inclusion

The analytical perspective applied in this paper is inspired by Black feminism, a critical social theory developed by Black American women that foregrounds the analysis of power, structural inequalities, and social relations in society (Collins, 2000; Guy-Sheftall, 1996). The concept was developed as a form of resistance against the oppression of Black women in the US during and after slavery. Black feminism has developed analytical instruments such as "intersectionality" to understand and counter systems of oppression (Collins & Bilge, 2016; Crenshaw, 1989, 1991). Intersectionality, while contested as to its scope and meaning for a Black feminist agenda (Dhamoon, 2011, 2015; Nash, 2008, 2019), is about the interplay of discriminatory structures. Systems of oppression are designed based on socially constructed concepts like race, gender, and class that promote specific ideas about "the norm" and "the abnormal" and thus structure social relationships between groups of different skin color, genders, and economic power (Davis, 1981/2011; Hull et al., 1982/2010; Yuval-Davis, 1997/2011). Intersectionality and the study of systems of oppression have been picked up and developed further in numerous contexts, including in Great Britain (Mirza, 1997), Germany (Kallenberg et al., 2013; Salem, 2018), and in the realm of technology studies (Benjamin, 2019a, 2019b; Noble, 2018; Noble & Tynes, 2016) and technology design (Erete, 2021; Erete et al., 2023). This paper adds to this application across contexts by focusing on the experiences of Afghan refugee women with technology in Germany.

A concept relevant to this paper is "diversity," as it relates to social inclusion. Black feminists have criticized mainstream diversity discourses based on their own experiences of oppression and as part of their critical analysis of power. According to this critique, common diversity narratives promote the social inclusion of Black women without fundamental, structural changes in society (S. Ahmed, 2009, 2012; Crawley, 2006). Here, diversity and social inclusion connect because diversity efforts are expected to bring about social inclusion. Nash (2019) criticizes the apolitical nature of diversity narratives in mainstream liberal discourses focusing on diversifying

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
DOI: 10.33137/ijidi.v7i3/4.40292

college campuses. Diversity is associated with positive feelings, tolerance, and multiculturalism rather than a political call for changes in racial hierarchies (S. Ahmed, 2012; Berrey, 2015).

Nash (2019) also posits that the concepts 'diversity' and 'intersectionality' are often mixed, conflated, or appropriated: "Where diversity is a project of including bodies, intersectionality is an anti-subordination project, one committed to foregrounding exclusion and its effects" (p. 24). The inclusion of bodies as a diversity practice is then considered insufficient to counter existing hierarchies of power, as those "bodies" would be included in an existing unjust system. Intersectionality renders power inequities visible, which is a first step towards transformation. This perspective is relevant to the present paper as it raises questions about ICT-based social inclusion (if practiced as the inclusion of "bodies" in digital services without regard to power) as a potentially non-transformative practice that keeps the marginalization of Afghan refugee women in place.

Black Feminist Technology Studies expands the Black feminist theoretical framework to investigate questions of power in the design, development, distribution, and use of technology (Benjamin, 2019b; Noble, 2016, 2018). In Human-Computer Interaction (HCI), Black feminists have criticized the Western-centric and White design of technology (Erete et al., 2018; Erete et al., 2021; Rankin et al., 2021). This argument relates to the question: Who designs the digital services that diverse populations use? With a predominantly White and male perspective in Silicon Valley (Boyd, 2019; Wachter-Boettcher, 2017), technology may incorporate the implicit biases of this group and marginalize the needs and preferences of users of color (Benjamin, 2019a; Hankerson et al., 2016). Noble (2018) posits that "[t]he human and machine errors [coming to light in recent years] are not without consequence, and there are several cases that demonstrate how racism and sexism are part of an architecture and language of technology" (p. 9). While Noble's perspective has to be understood within the context of institutionalized racism due to the history of enslavement in the United States (Alexander, 2012; ACLU, 2021; Hinton, 2021), this perspective is relevant to this research because Afghan refugee women are situated in a position where they experience structural discrimination (Shahalimi, 2022b; Wörmann, 2003). The effects of these experiences should be considered when designing digital services for social inclusion (Erete et al., 2018).

Furthermore, a critical perspective on diversity efforts, such as developing ICT for refugees' social inclusion, sheds light on the politics involved. According to Keshavarz (2020), when designing ICT for refugees, we have to keep in mind that European border regimes with high-tech "shields" against refugees (i.e., cameras, tracking devices, biometric surveillance) are designed as well. They are designed to keep "the other" out and away from European wealth and comfort (Keshavarz, 2020). From a Black feminist perspective on structural discrimination, the techno-socially mediated relations between Europe and refugees must be considered when discussing one-off ICT solutions that are promoted as fundamental to social inclusion.

Background: Structural Experiences of Afghan Women

This section offers an overview of the structural experiences of Afghan women in Afghanistan and Germany and their interaction with ICT. Structural experiences refer to a lived reality observed across individual contexts. Structural experiences are big-picture trends of how a person belonging to a particular social group is received and treated in society. This section focuses on widely shared experiences of Afghan women in their home country, in the host country, Germany, and when they engage with technology. Three insights from Black feminism

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
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help present the experiences of Afghan refugee women. Guidance from Black feminism does not imply that Afghan women are Black women or that their experiences are the same. Instead, insights about Black women as a marginalized group in the US offer inspiration for analyzing marginalized **women** in other contexts.

The first insight is that different configurations of oppression and privilege may affect group members. Oppression refers to the systematic deprivation of resources of one group by another group, including material items, knowledge, and power (Collins, 2000). This oppression is based on perceived features of group members (which are social constructs marking differences), such as their race, ethnicity, religion, class, gender, and sexuality. Privilege means a person enjoys unearned societal advantages (McIntosh, 1988).

The second insight is about the structural experiences of Black women. According to Collins (2000), not every individual Black woman has to experience oppression for it to be a structural experience of most Black women. This means a structural experience remains structural even if an individual has a different experience. This paper does not claim that the experiences of Afghan refugee women are homogenous. There is diversity in the group of Afghan refugee women, with some being highly educated, running their businesses, and being financially independent, while others are socio-economically marginalized (Putnam, 2021; Shahalimi, 2022a). Nevertheless, this research conveys the bigger picture (i.e., a structural understanding) of political, economic, and cultural influences on the lives of Afghan women.

Third, there is a dialectic of oppression and resistance that shapes the experiences of Black women (Collins, 2000). Generalizing this insight means that a marginalized group may be oppressed but simultaneously resist this oppression and become an agentic group. In terms of ICT, an example is the appropriation of technology by marginalized groups that has been designed by and for members of the majority society (Martinez Demarco, 2023). Such appropriation can be part of an empowering strategy that uplifts the voices of previously underrepresented groups.

The third insight about the dialectic of oppression and resistance is particularly relevant for presenting Afghan women's experiences. Given the persisting global narratives about the victimhood of Afghan women (Abdelkarim, 2021; Ellis et al., 2007), it is vital to avoid falling into the trap of reinforcing such narratives. For example, Afghan women should not be presented as helpless in terms of using ICT. This study shows that Afghan women have their own suggestions for technology design. At the same time, it is important to recognize structural disadvantages, especially in the context of research with Afghan women. For example, Afghan refugee women's situation of deprivation in Germany may influence their ability to give informed consent to participate in the study presented in this paper (Ellis et al., 2007).

I will begin with the situation of Afghan women in Afghanistan. On August 15, 2021, the militant Islamist fundamentalist group Taliban took over the government in Afghanistan. Subsequently, the situation for Afghan women and girls has deteriorated to the extent that women are beaten and imprisoned for leaving the house without a male guardian (PBS Newshour, 2022). Also, before the Taliban takeover, Afghan women experienced oppression from Taliban fighters and warlords. Given threats from these groups, Afghan women have barely received education, let alone political power (Joya & O'Keefe, 2010). Although educational opportunities increased significantly for girls between 2001 and 2020, women's literacy rate is around 30 % (UNESCO Institute for Lifelong Learning, 2020). Traditional customs and strict interpretations of Islam

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
DOI: 10.33137/ijidi.v7i3/4.40292

make it more difficult for Afghan women to participate in public life, the economy, and politics (Nordland et al., 2019; Wörmann, 2003).

Insights into the contemporary experiences of Afghan women are offered in Nahid Shahalimi's book *We Are Still Here: Afghan Women on Courage, Freedom, and the Fight to Be Heard*, first published in German in 2021 (Shahalimi, 2022a, 2022b). The author emphasizes the patriarchal nature of Afghan society with a divide between conservatives and liberals. The family's male members strongly influence a woman's life, representing her publicly and managing her wealth (Shahalimi, 2022b). Progressive Afghans support women's education, while conservatives prescribe women's role in the household (Shahalimi, 2022b). Conservative forces like the Council of Mullahs and the Taliban enforce strict rules that prohibit women from dancing, singing, or following a career (Shahalimi, 2022b). Women in politics are threatened with death (Shahalimi, 2022b).

These power configurations, like gender hierarchies, influence Afghan women's relationships with technology. The patriarchal Afghan society pressures women to be reserved, which means not sharing content, photos, and real names on social media (N. Ahmed et al., 2022; Hussain & Amin, 2018; Nader, 2020). Women in Afghanistan are also conscious of the fact that they could be (sexually) harassed online without legal remedy or support from the family (N. Ahmed et al., 2022). At the same time, ICT can be a tool to circumvent rigid gender regimes. Putnam (2021) finds that Afghan businesswomen rely on ICT to run their businesses anonymously, thus not visibly violating social norms.

When fleeing from Afghanistan to Germany, Afghan women face hardship similar to other refugees (Berg, 2022). In the host country, refugees face insecurities about the outcome of an asylum application and deportation (Suerbaum, 2021), as well as poor living conditions and economic marginalization (Lewis et al., 2015). Germany has a specific configuration of bureaucracy and power. There is enormous pressure from authorities on all refugees to fulfill bureaucratic obligations and follow the correct legal processes, which no less affects Afghan women (Abdelhady et al., 2020). Furthermore, Afghan refugee women experience Islamophobia and racism. Especially after 9/11, Afghan women have been portrayed as terrorists in Western media (Osman, 2019). At the same time, Afghan women are considered victims in need of saving, which obscures their activism for women's rights, education, and political involvement (Joya & O'Keefe, 2010).

Indeed, Afghan women have actively protested their oppression in political campaigns, as local leaders, and online (Joya & Mallett, 2009; Shahalimi, 2022b). ICT supports these political efforts to campaign for Afghan women's rights because it allows women to voice their opinions online, receive remote education, and work from home (Code to Inspire, 2015; Shahalimi, 2022b). A concrete example is the launch of social media campaigns such as #Whereismyname to support Afghan women's rights (Nader, 2020).

State of the Art: ICT Use by Refugees and Designing for Social Inclusion

Previous research about the use of ICT for the social inclusion of refugees is scattered across scientific communities. ICT4D studies the potential of ICT to assist the self-help and development of refugees' livelihoods in host countries (Bock et al., 2020; Schreieck et al., 2017a). HCI also has a research stream on ICT and development that deals with refugee and migrant experiences (Sabie et al., 2021). Information Systems investigates the use of ICT by refugees. Examples

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
DOI: 10.33137/ijidi.v7i3/4.40292

include the workshops "Empowering Refugees with Technology: Best Practices and Research Agenda" at the European Conference on Information Systems 2017 and "Leveraging Technology for Refugee Integration: How Can We Help?" at the International Conference on Information Systems 2016 (Galletta et al., 2019). Communication and Media Studies is interested in refugees' digital, multimedia, and information literacy (Alam & Imran, 2015; Lloyd et al., 2013). New fields have also formed around ICT and (forced) migration, such as "Digital Migration Studies" (Leurs & Smets, 2018).

This section brings together previous research from different disciplinary backgrounds, covering the experiences of refugees with ICT in host countries and the design of ICT for refugees' social inclusion. My research extends prior work in the following ways: Firstly, it fills a gap since Afghan refugee women's use of ICT in Germany has not received attention. Although previous research has looked at refugees' experiences in Germany, these refugees have been groups of various nationalities. Conducting research specific to Afghan women sheds light on a group situated uniquely in German society due to social, cultural, and political factors. Secondly, this paper challenges previous research that exclusively promotes the benefits of ICT without critical reflection. While I do not deny the potential advantages of using ICT for isolated goals related to social inclusion, there are limitations to using ICT for social inclusion, and these limitations should be considered in a German program for integration and migration management.

In previous works studying refugees' use of ICT, refugees were portrayed as heavy users of technology (Patil, 2019), and ICT was characterized as refugees' "lifelines to the past, present, and future" (Fisher, 2018, p. 100). In the German context, Kreß and Kutscher (2016) reported that refugees first buy a SIM card and create a Facebook, WhatsApp, and email account. In a study with refugee women in Germany, Berg (2022) showed that ICT is crucial to women's well-being because it offers access to language training, emotional support from family members back home, and distraction through entertainment. ICT provides access to spirituality, as online videos of religious leaders reciting the Quran can be consumed without being present in a mosque (Akca, 2020). A significant barrier to ICT use is the lack of Internet access in refugee accommodations in Germany (Berg, 2022). This was also shown in a study with unaccompanied refugee youth who use public Wi-Fi in fast food chains (Kreß & Kutscher, 2016).

While ICT is essential to communicate with families back home, there are also downsides. Unaccompanied refugee girls experience surveillance by families who are concerned about their conduct in Germany (Thomas et al., 2018). Stories of war at home reach refugee children via social media, which may cause psychological distress (Thomas et al., 2018). Witteborn (2015) found that communication with families exposes refugees to unrealistic expectations (i.e., finding suitable employment and sending money to Afghanistan) because families are unaware of the hardships refugees experience in Germany. Social media can offer a remedy by allowing refugees to create their own identity and speak out "against restrictive asylum laws and social marginalization" (Witteborn, 2015, p. 363).

Some research focuses specifically on the use of ICT by Afghan refugees. In Canada, Afghan refugee women use ICT to learn English and find accommodation (Quirke, 2012). In a study with Afghan refugees in Iran, Jauhiainen et al. (2022) noted that Afghan refugees who grew up in Iran, a neighboring country of Afghanistan, had access to ICT in their youth, while Afghan refugees born in Afghanistan lacked such access. Afghans living abroad may thus have more experience with ICT than Afghans in Afghanistan. In a study with Afghan Sikh refugees in India, Pandey and Ilavarasan (2019) found that social media increased their social and economic capital. Facebook

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
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groups were utilized to share cultural events in the host country that reminded Afghans of their traditions.

Previous works have emphasized the potential of ICT to support the social inclusion of refugees in host societies. Galletta et al. (2019) presented a research agenda for their paper, "*ICT-Enabled Integration of Refugees,*" where they argued that through access to digital services (i.e., mobile health apps), ICT empowers marginalized groups to collaborate and share with others in the public sphere.

In Germany, several apps have been developed with the motivation to ease the settlement of refugees: the app "Ankommen [Arrival]" by the German Federal Ministry of Migration and Refugees; the app "Welcome" by Heinrich & Reuter Solutions GmbH; the app "Integreat" by Tür a Tür – Digitalfabrik gGmbH (Schreieck et al., 2017a). The app Integreat is a frequent best practice example for refugees' ICT-based social inclusion (i.e., Galletta et al., 2019). It allows local administrations to provide accurate and timely information to refugees in various languages and in a centralized manner (Schreieck et al., 2017a; Schreieck et al., 2017b).

Information retrieval was also at the heart of a design probe for a chatbot that answers refugees' questions (Z. Chen et al., 2020). The chatbot was developed with economic migrants in Finland and breaks down information into easily consumable pieces, making information-seeking more pleasant. In Australia, Almohamed et al. (2018) developed a prototype website that connects refugees to NGOs. Through the matching via the website, volunteers could assist refugees with questions of citizenship and visa applications (Almohamed et al., 2018).

Brown and Grinter (2016) observed that language is a crucial challenge for refugees arriving in the US. To assist refugees' interaction with volunteers, Brown and Grinter (2016) developed "Rivrtran [Refugee IVR Translation]," which is a messaging platform that provides translations between refugees and their host families. External volunteers make translations with a slight delay, which is suitable for less urgent interactions (Brown & Grinter, 2016). Weibert et al. (2019) designed "Language Wizard," an app that helps refugees in Germany find (free) language classes by quickly navigating different types of classes, costs, and eligibility to enroll.

Getting around in their new environment is another challenge for refugees. To assist refugees in understanding accommodation and transportation in the US, Baranoff et al. (2015) developed "Lantern." Based on near-field communication, refugees can scan a sticker on a door or wall and receive immediate assistance. Such works focus on the benefits of ICT in addressing refugees' challenges, including information gaps, language, and navigation of new environments. Literature acknowledging the limitations of ICT use for social inclusion is rare.

Among the few works offering a critical perspective on ICT development for refugees' social inclusion is Alam and Imran (2015), who investigated the relationship between access to ICT and social inclusion. They find that the availability of ICT for integration purposes is not enough. Refugees also need digital literacy skills and the financial means to afford broadband. Keshavarz (2020) criticized the "blind" designing of ICT solutions for refugees while the same refugees are systematically prevented from entering the European Union or deported. He argued that designers lack awareness of the politics behind refugees' "social inclusion" and called for a justice movement. Critical perspectives on the design of ICT for refugees thus qualify the affirmative discourse that focuses only on the benefits of ICT.

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
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Figure 1. Screenshot of the Dari-Language App "Ask for Help"

Methodology

This empirical study involved 14 Afghan refugee women between the ages of 20 and 50 in a large city in Germany. The study was conducted in four workshops between March and June 2022 in cooperation with an NGO for the rights of Afghan women. Participants were recruited via the internal communication channels of the NGO, including a Telegram chat group, phone, and personal contact. Participants had different levels of education; three had a high-school diploma or higher education; three did not go to school whatsoever; and the other participants had between three and seven years of school experience.

This study used focus group discussions to gather data. Focus groups are considered appropriate methods to generate insights into the attitudes of a group but also to identify disagreement

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
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(Bloor et al., 2001). Conducting focus groups with ethnic minorities requires adjusting elements of the method to the culture at hand (Colucci, 2008). My colleague at the NGO and I thus made culturally sensitive considerations. Afghan society has a strict segregation of gender in public spaces. Interacting with men outside the family can be seen as immoral (Shahalimi, 2022b). The instructor, translator, and participants were all female. Given my German nationality and lack of Dari language skills (Dari is one of the major languages spoken in Afghanistan), the NGO worker served as a translator and cultural mediator. For refugees, German authoritative figures can be associated with government administrations and the struggle for legal recognition. The presence of the NGO worker, whom participants knew beforehand, provided reassurance. No meetings were scheduled during the month of Ramadan (an important Muslim religious practice). Due to some participants' illiteracy, focus group exercises used visual and oral elements (Table 1).

Table 1. List of exercises conducted during focus groups

Exercise #	Name	Activity
1	Pile sorting and ranking (Colucci, 2007, p.1425)	Participants reflected on how ICT services created positive and negative experiences for them.
2	Choosing among alternatives (Colucci, 2007, p.1425)	Participants reflected on their preferences for communicating with an online community or family and friends.
3	Testing the chatbot "Ask for Help" (Z. Chen et al., 2020)	The participants downloaded and tested the chatbot "Ask for Help."
4	Roleplaying (Colucci, 2007, p. 1427)	Two participants enacted a scene where a designer and a tester talk about the chatbot "Ask for Help."
5	Storytelling (Colucci 2007, p. 1426)	The participants each told one sentence of a story about the development of an app.
6	Drawing a picture (Colucci, 2007, p. 1428); Fisher et al., 2016); Almohamed et al., 2020)	Participants drew a technology that can help Afghan refugee women adjust to life in Germany.

The focus groups involved the use of the chatbot "Ask for Help," which was developed in an EU-funded research project where I worked as an ethics researcher. The text-based chatbot was built on top of Telegram and allowed users to ask questions in a community (Schelenz et al., 2021). The chatbot's algorithms pick a user from the community who is deemed best suited to answer the question. The chatbot then allows communication and the sharing of expertise in a pool of individuals with similar or different social practices and skills. It can facilitate mutual help with specific tasks or questions. Although the chatbot was initially developed with students,

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
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its potential to support refugees should be explored. Z. Chen et al. (2020) showed that chatbots can be helpful tools for migrants and refugees during the orientation phase in a new country. For this reason, the chatbot was translated into Dari and tested with a group of Afghan women.

The study used elements from participatory design. Participatory design is a method that engages the stakeholders (mostly anticipated users) of a technology in its design (Bustamante Duarte et al., 2018). The study's primary objective was to survey participants' attitudes towards ICT, not necessarily develop an ICT solution. The prototype chatbot was a starting point to solicit participant feedback on ICT design. If the chatbot had been subject to development together with the participants, the study would have required the inclusion of participants in the first stages of participatory design (i.e., developing a scenario with participants, surveying needs, and collecting design suggestions) (Bustamante Duarte et al., 2018). Participatory design was applied particularly when participants imagined future technologies for Afghan refugee women's social inclusion in Germany.

The analysis was conducted in English, based on my field notes, as well as transcripts of recorded focus groups, which were translated from Dari into English. I used the Qualitative Content Analysis (QCA) method to identify reoccurring themes that shaped the discourse among participants (Mayring, 2000). QCA is a method where empirical phenomena, experiences, and values are identified through qualitative text analysis and connected to theory. I circled words that stood out in the transcripts, color-coded statements according to emerging themes, and connected them by drawing lines to other text parts. The themes from the material were privacy and safety concerns, distrust, digital illiteracy, uncertainty and insecurity, and preferences for ICT solutions that constitute an alternative to existing designs. These themes were then considered in relation to Black feminist insights about structural inequalities and dynamics of power. The results of this theoretical contextualization of the empirical material are presented theme by theme in the section of this paper detailing the results.

Ethical Considerations

The study was approved by the Department of Philosophy ethics committee at the University of Tübingen. In preparation for the study, a data protection impact assessment was conducted in line with the European Union General Data Protection Regulation (European Parliament, 2016). The information sheet and consent form were translated into Dari and verbally explained to the participants. All participants signed the consent form, agreeing to the audio recording of focus groups and data collection via the chatbot. Despite this, questions remain about the quality of consent. The study took place at the NGO headquarters, and an NGO worker was present during all workshops. Since the NGO provides essential services to the women (i.e., language classes, counseling), consent may have been given out of respect or for fear of losing support from the NGO (Ellis et al., 2007).

Beyond informed consent, research with refugees requires further ethical considerations. Power relations between the researcher and refugees are not equal. This inequality puts a moral obligation on the researcher to contribute to the improvement of participants' situations (Mackenzie et al., 2007). The study considered this moral obligation in the following ways: The first workshop was dedicated to building trust and a positive working atmosphere; breakfast was provided in all four workshops; and all participants received a gift and a certificate at the end of the study. The nature of the gift, which was a voucher for a drug store chain, was disclosed at the end of the study to prevent participants' socioeconomic precarity from coercing them to

ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
DOI: 10.33137/ijidi.v7i3/4.40292

participate. Finally, the research presented here will be broken down into a one-pager in simple German and Dari and handed to participants.

Biases of the study may emerge from inclusion and exclusion factors. Facilitators at the NGO targeted, particularly, Dari-speaking Afghan women. The workshop was held in Dari/Farsi (The Iranian NGO worker spoke Farsi, which is very similar to Dari except for specific vocabulary.), and the chatbot "Ask for Help" was translated into Dari. However, Afghanistan is a multi-lingual country with Dari and Pashto as main languages and multiple other spoken languages. Some potential participants may have been excluded because Dari is not their first language. During recruitment, we asked potential participants to bring a smartphone, and this may also have been an exclusion factor because not all Afghan refugee women have access to a smartphone.

Positionality of the Author and Implications

My positionality as a German citizen has implications for the research and its results. I am an outsider in the group of Afghan refugee women. I was also perceived as an authority figure during the study, which means that interactions between participants may have been adapted to my presence. Interpretation of the data was done without consultation of the participants due to resource constraints. This poses the risk of misinterpretation. Moreover, due to my privilege, I am unable to grasp the lived reality of Afghan refugee women. These constraints may lead to complicity in colonial practices of knowledge production about Afghan refugee women.

Following Lazem et al. (2022), this paper falls into the category of a Western postcolonial approach rather than a decolonial practice. While the research sheds light on an underserved community, it speaks about Afghan refugee women to a Western audience. As such, it does not actively counter Western colonial ways of knowledge production. Notwithstanding this concern or flaw, I decided to pursue this research to drive attention to the complexities and intersectionalities of the nuanced experiences of marginalized women's use of technology (Ellis et al., 2007).

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Results

Safety and Privacy Concerns

One theme emerging from the qualitative data was Afghan refugee women's concern for safety and privacy, especially safe communication with relatives in Afghanistan. In the exercise "Pile Sorting and Ranking," participants were asked to sort pieces of paper with the logo of an ICT service to their emotions towards those services. This exercise helped them express their attitudes towards different apps (Figure 2).

Figure 2. Results of Focus Group Exercise - "Pile sorting and ranking"

Many participants "loved" WhatsApp and Imo. The latter was explicitly mentioned, although it was not included in the given examples. One participant said WhatsApp allowed her to communicate with her family and friends in Afghanistan. Several participants agreed, but they also expressed the value of security. One participant stated: "We like WhatsApp because it has good security. A WhatsApp account cannot be hacked easily." The group asked me about the likelihood that governments or individuals hacked their phones. They wanted to know how they could protect their phones and which mobile brands were the safest. Participants' concerns about safety may be attributed to their experiences with persecution by militant groups. They may be afraid of the Taliban or other groups surveilling their families. This extends previous findings that point to refugees' awareness of government surveillance and abuse by militant groups through ICT (Mancini et al., 2019). In their interaction with ICT, Afghan refugee women may then want to rely on privacy-aware services but lack expertise in navigating the landscape

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of privacy affordances of different apps. Here, digital literacy training could help empower Afghan refugee women to protect their own and their family's privacy.

Another reason for valuing safety and privacy in online communication may be gender norms, as they prescribe "appropriate" behavior for women in the physical world but also online. In Afghan society, it is considered inappropriate for women to interact with men outside of the family. Safety and privacy may prevent unsolicited contact with strangers and avoid conflicts in the family. One participant in the study complained that she was contacted by a stranger via Instagram. She was concerned that strangers could see her private photos. She asked how she could prevent strangers from contacting her on Instagram. Another participant shared her skepticism about the true identity of other users: "I'm saying, it is possible that someone writes to you and says they are this person. However, they are lying in this moment, and they are not this person." This reflects the fear of interacting with a fake profile.

Participants were also aware of the real-life consequences of privacy violations. One participant shared a negative experience with Facebook. Back in Afghanistan, she wanted to share a photo of her new haircut with a friend. She did not understand that posts are seen publicly unless settings are changed, and she accidentally sent the photo to the public. Given the norm of wearing a headscarf in public, the accidental posting caused severe conflict in her family.

These findings confirm previous research. N. Ahmed et al. (2022) highlighted the difficulty of Afghan women juggling online visibility with family expectations and their protection against sexual harassment. Girls are significantly affected by the family's scrutiny (Thomas et al., 2018). In this context, N. Ahmed et al. (2022) discussed the challenge of designing ICT solutions for Afghan women. If conservative gender regimes motivate Afghan refugee women's interest in privacy, then culturally sensitive design, in this case, reaffirms patriarchal systems (N. Ahmed et al., 2022).

Distrust

Another theme identified in the qualitative data was Afghan refugee women's distrust of online communities. This is reflected by the earlier quote about the threat of fake profiles. In the exercise "Choosing Among Alternatives," participants were confronted with a topic and had to decide whether they would ask a question about this topic to an online group or their friends and family in person (Figure 3).

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Figure 2. Results of Focus Group Exercise - "Choosing Among Alternatives"

The topics ranged from finding employment to finding an Afghan restaurant to advice about a child's illness to getting married. The group disagreed in this exercise. Depending on the participants' prior experiences, they had higher or lower standards for trust. In general, though, participants were more on the skeptical side towards online communities. One participant expressed value in having a social media group consisting of her many friends and relatives. Given the large size of Afghan families, her question would reach numerous trusted individuals. Another participant argued that a big group with unknown people always meant many answers, which can be confusing. Asking just one highly trusted person guaranteed a straightforward and reliable answer.

For sensitive topics like marriage, one participant questioned other users' intentions in a more extensive chat group: "There are some people that you don't know, and they don't want good things for you and will betray you behind your back." Another participant questioned the efficiency of asking about marriage in a big group: "Everybody has their opinion, and it will not have a good result." Given participants' skepticism towards asking questions in a chat group, especially for personal issues, chat groups may not be appropriate for seeking advice.[3] In-person interaction in smaller groups or one-on-one may be more valuable. This confirms previous research by Quirke (2012), who reported in her study on Afghan refugee women in Canada that "the most trusted settlement information sources are people [instead of technology], including family, friends, teachers and settlement workers" (p. 536). Hence, in-person contact when asking for help may be more attractive to Afghan refugee women than ICT solutions.

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Digital Illiteracy

A relevant issue to the group of Afghan women was digital illiteracy. This became clear during the testing of the Telegram-based chatbot "Ask for Help." The onboarding process that allows users to register in the chatbot was too complicated and caused frustration. The onboarding consisted of multiple steps: locating the chatbot in Telegram, following English-language instructions to register an account on the website of the EU project that was developing the chatbot, checking the email inbox (spam folder), and clicking the link therein for confirmation, filling in a profile, and returning to the chatbot and accessing a link to agree to the data processing guidelines. Although the chatbot itself was translated into Dari, the user had to register an account following English-language instructions before being able to specify the language in their profile. None of the participants had English-language knowledge. In addition, some of the participants did not have an email address. The NGO worker and I registered email accounts for them so that they were able to use the chatbot at all. One participant expressed her frustration:

> I'm talking for myself! I actually cannot use this. I cannot download or upload these requirements for this chatbot. I don't have an email address or Gmail. Then how can I ask for your help [in the chatbot]? You are doing all this for me. (Study participant, n.d.)

Difficulty in navigating the chatbot partly stems from participants' lack of digital literacy, which can be attributed to the violence-induced lack of education in Afghanistan. Digital illiteracy is also observed in Steinbrink et al. (2021), who demonstrated that Afghan refugees in Germany have particularly low digital literacy compared to other nationalities. However, the design of the chatbot also produced barriers. The Latin alphabet, English language, and text-based communication in the onboarding process made usage of the chatbot difficult for participants (Warschauer, 2003). The design of the chatbot "Ask for Help" reflects designers' bias that users' preferred mode of communication is through written exchange. Dell and Kumar (2016) emphasized the importance of moving from text-based designs to voice and graphics when designing for low-literate populations. Almohamed et al. (2020) also stress the advantage of having voice-based assistants for refugees to retrieve information and book appointments.

Another issue that came up in the study was the accessibility of the chatbot for Afghan refugee women who had just arrived in Germany. In a roleplaying exercise, participants enacted a conversation between a designer of the chatbot "Ask for Help" and a user. One participant playing the user observed: "When somebody is new to this country, she doesn't know about this chatbot." Another participant said, "There are times that the person does not have a SIM card." Several ideas were raised to circumvent these barriers: the chatbot could be pre-installed on any phone and immediately usable; it could be advertised at the immigration office and in reception camps; a phone having the chatbot installed could be shared with newcomers; a web version of the chatbot could be accessed via an Internet café or NGO computer. Hence, creativity in tapping the sharing economy and cooperating with technology providers, administrations, and public services might reduce barriers to accessing ICT.

Uncertainty and Insecurity

The study revealed that participants had a strong feeling of uncertainty and insecurity when interacting with the chatbot. One issue was uncertainty about the peers' availability. Not

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knowing whether another user would see and respond to a question sent to the chatbot made participants feel vulnerable. The chatbot matches the question of User A with a competent User B, who answers in their own time. User A must then wait for User B to answer the question. This delay in answering a question clashed with Afghan refugee women's everyday needs for real-time assistance, like navigation. One participant described the problem:

> I have moved to this country recently, and I want to find an address. To find this address, I want to use my phone and this chatbot to ask for your help. Unfortunately, I will wait and wait for five, 10, and 15 minutes and I don't receive any answers. Now I'm waiting in a square in the city and don't know what to do. (Study participant, n,d.)

The discontent with a service that offers delayed communication can be attributed to language barriers and cultural unfamiliarity with German infrastructures. While most individuals may prefer a quick answer to a question, Afghan women are dependent on real-time digital assistance in the case of navigation as they cannot ask a person in the street for help due to language barriers. Participants criticized that the chatbot design does not allow the user to see if User B has already seen the question like they can in other app services that provide a read confirmation via tick marks. The participants stressed that they preferred other online services, like WhatsApp, over the chatbot for urgent tasks. An ICT solution for Afghan refugee women's social inclusion should thus offer reassurance that the community of peers is reachable at an instant.

Another issue was insecurity caused by confusion around the features of the chatbot. Participants were unable to register in the chatbot and later had difficulty navigating the app, which caused frustration. In previous research, Talhouk et al. (2019) found that refugees experience frustration with failing technology. If technology does not work properly or refugees note that they are unable to use it, their self-confidence decreases, and their motivation to participate in finding design solutions may be compromised. Given Afghan refugee women's experiences of uncertainty in critical areas of their lives (i.e., the survival of their family in Afghanistan, the outcome of their asylum application, financial insecurity), experiences of failure with the chatbot may compound psychological distress. ICT for Afghan refugee women should thus foster even the most minor experiences of success to support well-being and confidence.

Preferences for an ICT Solution for Afghan Refugee Women's Social Inclusion

Throughout the study, participants voiced their preferences for ICT-based solutions that support Afghan refugee women's integration into German society. The discussion of the shortcomings of the chatbot "Ask for Help" led to suggestions for improved design features. They are summarized and linked to their underlying value in Table 2.

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Table 2. Design Features for an ICT Solution That Can Support Afghan Refugee Women's Social Inclusion

Supported Value	Design Feature	Explanation and Examples
Reassurance	Real-time assistance	The ICT solution connects users to real people in an instance who can assist them with urgent tasks.
	Read confirmation	The ICT solution makes it transparent if a request or message was seen by the respondent.
Safety	Trusted respondents	The ICT solution connects users to trusted individuals, like family and friends, volunteers, and NGO workers.
	Good privacy and security	Conversations in the ICT solution must be private, so outsiders cannot contact the user.
Independence Self-efficacy	Access without the help of others	The ICT solution can be set up without the help of others.
	No English language, no Latin alphabet	The ICT solution uses Arabic letters, if there is text at all, and the native language of users.
	Audio feature	The ICT solution should be audio-based or, if necessary, text-based and offer an audio option.
	Easy to use	Any commands or features must be intuitive.
	Straightforward registration and simple interface	The registration process must be straightforward; the ICT solution does not require an email address to create an account.
	Experience of success	The ICT solution promotes moments of success through simple navigation and good results
Well-being	Friendly communication	The ICT solution ensures that communication is polite and respectful.
	Positive feedback	The ICT solution provides reassurance when the ICT was used correctly to reduce insecurity of the user (i.e., "you did great," "this worked," "well done").

In a "Storytelling" exercise, participants each completed one sentence of a story. In this story, an Afghan designer from Kabul was researching the needs of Afghan women for an app.

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Participants came up with the following features for an app: communication like video chatting and phone calls, but the conversations should be kept private; trustworthiness, "so that the girls feel comfortable to talk in it;" German language training; informational and educational services; and entertainment. In the exercise "Draw a Picture," the participants imagined real or fictional technologies for Afghan refugee women. Figure 4 shows a magic car that becomes invisible when crossing a border. Asylum seekers are not allowed to leave Germany until their case is decided.

Figure 3. Drawing: A Car Invisibly Crosses Borders

The car allows refugees to still visit families and friends across Europe. The magic glasses in Figure 5 allow Afghan women to read any document in their native language. Moving through foreign countries and reading road signs but also reviewing letters from the job center in Germany, the glasses enable real-time translation.

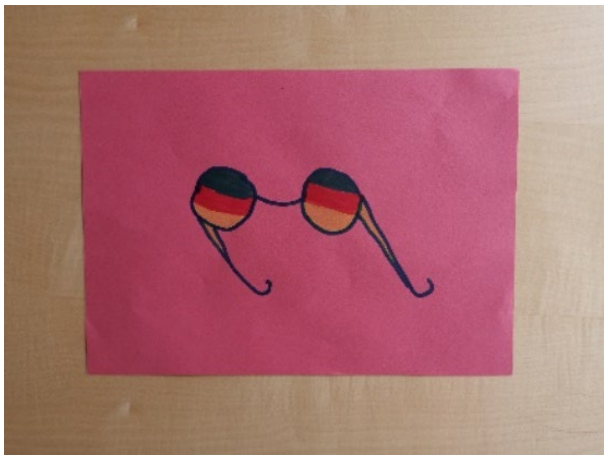

Figure 4. Drawing: Magic Glasses

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Technologies closer to existing ones were also imagined. One participant developed the idea of an "Afghan app," which focuses on translation. Another participant extended this idea to include non-Afghans in the app. She imagined "a public or global app with different languages and, like YouTube, with different pages for different purposes: for example, 'doctor page' [to find medical advice]." Such a general app should also help users find an attorney, learn German, navigate abroad and in Germany, and find friends. One participant imagined an app "like a psychotherapist so that I can share my problems with [it]." However, not all imagined solutions were technology-based. One participant imagined an NGO from Afghan women for Afghan women: "[…] apart from translating the letters from the job center, we could help to solve more serious and fundamental problems of these women." The participant's idea stresses the importance of programs that are not ICT-based but rather connect Afghan refugee women with each other in person.

Discussion

Information and communication are essential to social inclusion because they are the tools to bridge divides between the newcomer and the host society in terms of cultural and social practices, resources, and skills. Social inclusion is at risk when newcomers lack the information practices required to participate in communication (Lloyd et al., 2013). The study results in this paper suggest that Afghan refugee women are challenged by navigating the digital mode of information and communication in Germany. Challenges in accessing ICT can be experienced by numerous groups including German elders, but reasons for a lack of access may differ. In the case of Afghan refugee women, experiences with technology are shaped by culturally specific gender configurations, their persecution by militant groups, and a severe deprivation of education. These experiences are intersectional and should be considered when designing ICT-based solutions for Afghan refugee women's social inclusion, as centering marginalized communities in technology design, can be a step toward social justice (Costanza-Chock, 2020).

However, it would be short-sighted to merely focus on improving one-off design solutions. Instead, the design of Germany's migration management infrastructure produces barriers to social inclusion. Refugees must rely on the use of digital services to receive essential services. In some cities in Germany, making an appointment at the immigration office requires the use of a web browser, an email address, and filling out a lengthy online form. Sabie and Ahmed (2019) argue that "[t]he political values that a state embeds in its infrastructure thus determine the quality of access of migrants to the critical services of their life" (p. 219). The (infra)structural exclusion as it presents itself for Afghan refugee women in Germany is further exacerbated by the common narrative that refugees are heavy users of technology and benefit from ICT (Fisher, 2018; Galletta et al., 2019; Patil, 2019). To counter their exclusion, large-scale digital literacy classes need to be implemented for Afghan refugee women during their orientation in Germany.

This said, providing large-scale digital literacy training would present a one-sided integration of Afghan refugee women into German society. Afghan refugee women must adapt to German communication practices in a one-sided manner. Social inclusion is all too often seen as the adoption of White, male, and Christian practices by the cultural "other" instead of coming from both sides of the sociocultural divide and meeting in the middle (Berrey, 2015). An alternative approach would be to reconfigure power relations and redistribute resources to ensure that those who are marginalized can become full members of society. In this vein, in-person services for

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low-literate refugees should be considered to foster social inclusion. These in-person services must be provided in a welcoming manner and defy any discriminatory treatment. Previous research suggests that in-person services can increase trust (Quirke, 2012) and be meeting points for Afghan refugee women to connect and socialize (Warschauer, 2003).

Conclusion

This paper has investigated the experiences of Afghan refugee women in interaction with technology. Ultimately, it has raised the following issues: While ICT solutions can support the social inclusion of Afghan refugee women in aspects like communication with peers and NGOs as well as navigation, they are not the only and not necessarily the most effective ways to foster inclusion. This is because experiences of marginalization, including a lack of digital literacy, rigid gender regimes, and the fear of persecution by militant groups shape Afghan refugee women's needs for trustworthy and simple-to-use ICT. To ensure that Afghan women can take advantage of ICT designed for refugees, the design must center their needs, for instance by offering audio features, intuitive commands and navigation, real-time assistance, and registration without an email address. In addition, digital literacy classes are required to help Afghan refugee women adapt to the increasingly digital communication practices prevalent in German society, especially when it comes to interaction with administrations.

Finally, it is crucial to offer in-person services to Afghan refugee women and other low-literature refugees (and even low-literate German citizens, for that matter). In-person services can meet expectations of trust and safety and allow for in-person contact between the host society and refugees and among the refugees themselves. In thinking about how German society may develop new strategies to meet the growing demand for social inclusion of newcomers, three avenues for social inclusion should be followed: (1) provide ICT services that center the needs and assets of refugees in their design; (2), offer free-of-cost digital literacy training to refugees; and (3) establish in-person services based on trust and kindness. This three-fold approach can meet the diversity of practices and experiences among refugees and can be a comprehensive blueprint for social inclusion with and without technology.

Endnotes

[1] For the purpose of this paper, there is no distinction between refugees and asylum seekers. The German legal system makes a distinction, though. Refugees have received a case review and were determined as being under threat of persecution in their home country, thus they are "real" refugees. Asylum seekers have claimed to be refugees but have not yet received a review of their case by the German authorities. This paper is interested in the lived reality of Afghan technology-users who have fled their country rather than in their legal status under the German system. Therefore, the terms refugee, asylum seeker, and forced migrant are used interchangeably.

[2] Black feminism has been developed in numerous contexts, including Great Britain and African countries. This paper uses a US-centric version of Black feminism as Black feminists in the United States have engaged heavily with technology-related discourses in recent years (see Benjamin 2019b; Noble 2016, 2018). The paper builds on these discussions and extends the application of Black feminist theory to other cultural and social contexts to show its strength as a framework for structural analyses beyond a specific historical and socio-cultural context.

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[3] These findings may not necessarily be specific to Afghan women but apply to various individuals who value their privacy. Nevertheless, the findings have implications for attempts to design ICT for social inclusion, as designs involving a bigger chat group may not be adopted by Afghan women.

Acknowledgments

This research has received funding from the European Union's Horizon 2020 FET Proactive project "WeNet - The Internet of Us," grant agreement no. 823783. Additional funding was received through DIGILOG@BW—DIGITALISATION IN DIALOGUE, funded by the Ministerium fuer Wissenschaft, Forschung und Kunst Baden-Wuerttemberg, Germany, with resources for digitalization efforts of the state of Baden-Württemberg digital@bw. I thank Prof. Astrid Franke, University of Tübingen, and Prof. Daniel Gatica Perez, EPFL, for their valuable advice. Thanks also to members of the Ph.D. colloquium of Prof. Astrid Franke for their feedback on earlier drafts.

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The International Journal of Information, Diversity, & Inclusion, *7*(3/4), 2023
ISSN 2574-3430, jps.library.utoronto.ca/index.php/ijidi/index
DOI: 10.33137/ijidi.v7i3/4.40292