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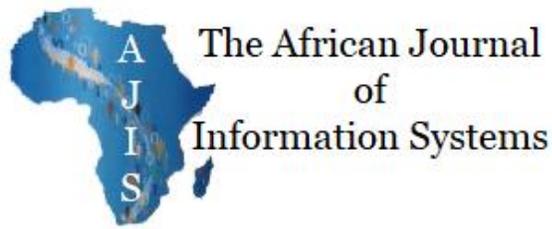
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Mobile Phones and Social Inclusion of Women in Africa: A Nigerian Perspective

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ABSTRACT

Information and communication technologies (ICTs) are increasingly being recognised as vital tools with regards to the social inclusion of women. Specifically, we investigate the effect of mobile phone use on the social inclusion of women in Nigeria. Our study focuses on what these women are able to achieve with their mobile phones and the implication of these achievements on their ability to effectively participate in the society. We draw on a qualitative ethnographic study of resettled northern women in the southern city of Lagos to understand how mobile phone use contributes to their social inclusion. From our analysis, we derive valuable capabilities such as to generate income, to be financially included, to maintain social relationships and to seek relevant information, that are enabled for these women through mobile phone use. However, the realisation of these capabilities is dependent upon personal, social and environmental conditions. We illustrate how women exercise their agency to use mobile phones in ways that enhance their wellbeing and overall effective participation in this new society. Our findings contribute to the discourse on the role of ICT in the process of social inclusion for women.

Keywords

Women, ICT, social inclusion, capability approach

INTRODUCTION

Social inclusion is an essential component of the agenda for an equitable and inclusive world for all. Often defined as “having the opportunities and resources to participate fully in economic, social and cultural life” (Wilson & Secker, 2015, p. 52). Social inclusion is believed to bind all population segments together, thereby leading to a strong and cohesive society (Silver, 2015a). People are included or excluded based on individual or group identities such as gender, ethnicity, status, location, disability status, religion, etc. Exclusion based on such characteristics is often associated with lower outcomes with regards to income, social standing, access to employment and political participation and so on.

Within the African continent, while there are many forms of social exclusion, it is prevalent among certain groups; women, youth, people with disability, refugees and migrants, etc. African women face many constraints in relation to effectively participating in society due to violence, insecurity, forced displacement and as well as their roles within power and social structures of communities. Improving the terms on which women take part in society entails enhancing their abilities and opportunities (Masika & Bailur, 2015). Technology is believed to open up new avenues through which vulnerable groups could be reached (Chigona et al., 2009). By the end of 2018, there were 456 million unique mobile subscribers in sub-Saharan Africa, an increase of 20 million over the previous year (GSMA, 2019). The penetration rates of mobile technologies, specifically mobile phones within sub-Saharan Africa have generated a lot of optimism regarding the vital role they could play in enabling greater social inclusion for women, as part of the quest of achieving global development (Wyche & Olson, 2018).

The aim for a better world and the role of ICTs in achieving it, has been at the core of information and communication technology for development (ICT4D) research and practice for years (Qureshi, 2015; Walsham, 2012). Recently, there has been renewed concerns raised for more research to understand the link between ICTs and women in countries with developing economies (CDEs) (Walsham, 2017). Particularly the role of ICT in supporting the empowerment and social inclusion of vulnerable groups such as refugees, internally displaced persons, migrants, etc. (AbuJarour et al., 2019; Trauth, 2017). We contribute to this body of literature by focusing on the social inclusion of Nigerian women. Increased violence, rampant kidnappings and other security challenges in northern Nigeria have resulted in increased migration to the southern part of the country (Idio, Wilcox, & Akadi, 2016). With differences in the culture between the southern and northern part of Nigeria, women are bound to face certain challenges while trying to integrate into these new societies (Makama, 2013), posing the risk of exclusion from full participation in society to resettled northern women. In this paper, we aim to understand how resettled northern women in southern Nigeria are using mobile phones to promote their social inclusion. Specifically, our study aims to answer the question; *How do Nigerian women use mobile phones to promote their social inclusion?*

Despite the growing number of research studies on social inclusion in the information systems domain, existing studies have been criticized for focusing on technology adoption thereby lacking clear theorization of the phenomenon of inclusion (Trauth, 2017). Addressing this gap, we adopt Sen (1999) capability approach to conceptualize inclusion in terms of the expansion in these women's capabilities as they construct meaningful lives, lives they have reason to value. Capabilities in this sense, refers to what people are effectively able to do or be. Sen (1999) argues that we should focus on the uses a person can make of the various resources available to them rather than the resources a person has access to (Robeyns, 2006). Key to this approach is the concept of agency; we focus on how these women exercise their own agency to fight exclusion and promote inclusion. Agency here is referred to as what a person is free to do and achieve in pursuit of whatever goals or values they regard as important (Alkire, 2005). Our empirical study is based on a qualitative ethnographical approach that involves immersion in the natural settings of our study participants. We focus on a group of northern Nigerian women who have moved to the southern city of Lagos. We explore how their use of mobile phones enables opportunities for them to socially and economically participate in their new host society. The rest of the paper is organized as follows; the next section introduces the concept of social inclusion. This is followed by the methodology. An analysis and implications for the data gathered is provided in the subsequent section. Thereafter, the final section concludes the paper and provides recommendations for future research.

THEORETICAL BACKGROUND

Social Inclusion, Social Exclusion

Social inclusion and exclusion are widely contested notions that are often conceptualized differently in different disciplines. An explanation of the arguments driving social inclusion discourse would be incomplete without a better understanding of social exclusion. Social exclusion discourse is reported to have originated in France; the term is commonly attributed to René Lenoir particularly in a social policy context by identifying *les exclus* as unprotected citizens with special needs (Silver, 2015b). Social exclusion is intricately linked to poverty and was initially determined in economic terms relating to income and unemployment (Silver & Miller, 2003). The effects of national and local institutions often result in different manifestations across multiple dimensions (Silver, 2015a). Over time, research on social exclusion and its impact on society has revealed that the concept of exclusion could not be defined based on a single indicator (poverty) (Chigona et al., 2009). Rather, there was a need for a more holistic approach that embraced multiple dimensions across which people experienced exclusion (Peace, 2001). Over the years, definitions of the term have broadened to include deprivations in other dimensions and its impact on individuals in relation to society (Levitas, 1999). Debates on inclusion and exclusion have advanced beyond earlier narrow conceptualization of poverty to more broader discussions that focus on consequences such as capability deprivation and social participation (Sen, 2000; Silver, 2010). This allows an understanding of inclusion both in terms of structural factors as well as individual life experiences (Rashid, 2017). The insistence on inclusion as evidenced in the United Nations Sustainable Development Goals (SDGs) and other international development agencies agendas stems from the recognition that global development cannot be achieved without ensuring an equal and inclusive society for all. In view of this, Silver (2007) defines social exclusion as “detaching groups and individuals from social relations and institutions and preventing them from full participation in the normal, normatively prescribed activities of the society in which they live” (p. 1). Social inclusion, on the other hand, is concerned with enabling groups and individuals to participate fully in such activities. Warschauer (2003) defines social inclusion as “the extent that individuals are able to fully participate in society and control their own destinies” (p. 8). Social inclusion is a context-dependent concept that differs across many countries. The effects of national and local institutions often result in different manifestations across multiple dimensions (Silver, 2015a). While there are many definitions of social inclusion, the term is increasingly employed to describe multidimensional, relational processes of creating opportunities for participation regardless of a person’s gender, ethnicity, sexual orientation or socio-economic class.

Women, Mobiles and Social Inclusion

Social inclusion research within the field of information systems emanated from the realization that the effects of information and communications technologies and information systems based on them were beyond organizational boundaries (Trauth & Howcroft, 2006). Modern ICTs and their impacts were being experienced in wider contexts. This resulted in consensus on the need to expand the scope of information systems to cover broader societal issues (Trauth, 2017). Ongoing conflicts in many countries across the world have resulted in significant increases in the number of people forcefully displaced and people living in extreme poverty. Unfortunately, women form a large part of the vulnerable groups that face major constraints in terms of social inclusion resulting from this ongoing violence in Africa (World Bank, 2017). In relation to resettling in a new environment, refugees, migrants and internally displaced women face a lot of challenges, especially given the situation of leaving their homes (Walker et al., 2015). Maintaining social networks with both local community and

families back home creates a sense of belonging and a settled feeling that enables better societal participation for individuals (Vancea & Olivera, 2013).

On the bright side of an ICT perspective, reports have indicated that through access and usage of ICT, refugee women are able to create social networks and enhance their wellbeing and empowerment (Liamputtong et al., 2015). Several studies have shown that marginalized women use mobile phones to seek employment, support business connections with clients, start businesses, etc. (Nguyen et al., 2017; Vancea & Boso, 2015). Women require information to integrate into a new society; information on how to move around, information on the culture of the new environment and also information on the rules and regulations that guide that society.

ICTs such as mobile phones and social media are shown to facilitate communicative practices that include access to support groups for refugees, migrants and internally displaced women (Chib et al., 2013). Also, using mobiles female migrant workers are able to renegotiate and balance their multiple complex identities of mothers, workers, wives, etc. (Chib et al., 2014). This optimism is replicated in many studies. However, the relationship between ICT and the social inclusion of women is far more complex than often suggested. Furthermore, although research on marginalized groups such as women and ICT has become increasingly relevant, the majority of information systems (IS) research conducted on this topic has been in western settings (AbuJarour et al., 2019). CDEs and their unique settings provide different explanations on the nature of such relationships. Women and their usage of ICT cannot be studied in isolation of gendered positions and how this in turn influences the nature and outcomes of such usage (Webb & Buskens, 2014). Within the African continent, there has been a considerable number of studies on women and mobile phones. This is mainly due to the exponential growth of mobile phone penetration rates in recent years. Studies have looked at income generation opportunities and how mobile phone adoption and usage supports economic activities for African women. In a study on mobile phone influence among market women in Nigeria, Boateng et al. (2014) presented findings that showed that access to and use of mobile phones enhanced communication and trading processes through access to real-time information, removal of middlemen and wider customer coverage. Svensson and Wamala Larsson (2016) studied the role of mobile phone-based communication on the empowerment of market women in Kampala, Uganda. Findings revealed that the market women were able to use their mobile phones to earn a living and organize themselves in saving circles. However, although the women were able to become less dependent on their husbands, this in turn had a negative effect as a majority of them complained about being left to take care of other household duties including being responsible for their children. Similarly, Bailur and Masiero (2017) find that although income generation opportunities through mobile internet exist for young people in peri-urban areas of Kenya, Ghana and Uganda, there are gendered differences resulting from existing social and formal institutions and cultural stereotypes that affect the awareness and actualization of the affordances to generate income. Furthermore, studies on mobile phones and African women have focused on other dimensions such as access to government services, e-learning and healthcare (Abubakar & Dasuki, 2018; Nguyen et al., 2017). Yet, most of these studies rarely focused on African women and their usage of mobile phones in relation to social inclusion. Hence, there is a need for more research on the role mobile phones could play in addressing the social inclusion of women.

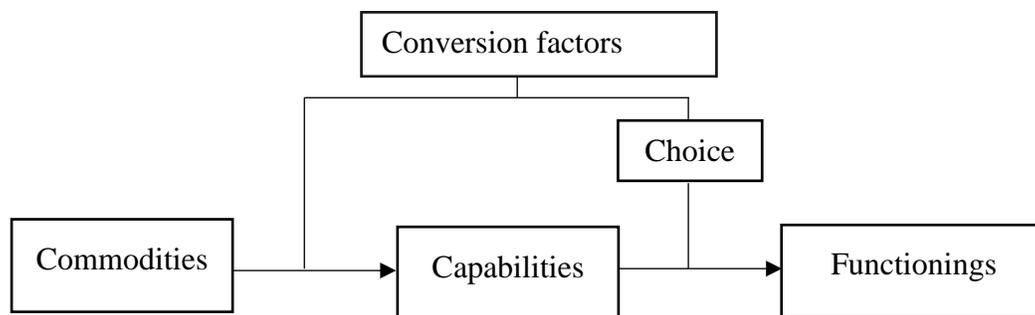
Capability Approach and Social Inclusion

The capability approach (CA) is a rich and multidimensional approach that evaluates “a person’s achievements and freedoms in terms of his or her actual ability to do the different things a person has reason to value doing or being” (Sen 2009a, p. 16). The main components of the capability approach are “functionings” and “capabilities”. Capabilities refer to the things a person could do or be, whereas

functionings are the corresponding achievements. Thus, capabilities are a person's real freedoms or opportunities to achieve functionings (Robeyns, 2003). The capability approach shifts our focus from narrow evaluations based on access to resources, to what people are able to achieve and the opportunities available to them through their usage of such resources. However, a person's ability to convert resources into functionings is dependent upon a range of personal, social and environmental factors (Robeyns, 2017). These factors are collectively known as conversion factors. Conversion factors are also a core concept of the capability approach; they determine the extent to which a person can convert a resource into a functioning (Robeyns, 2006). Also central to this approach is the notion of "agency". Sen (1985) defined agency as what a person is free to do and achieve in pursuit of whatever goals or values he or she regards as important. The concept of agency is very essential to women's empowerment as, when exercised, it is believed to invoke the ability to question or confront situations of deprivation and, as individuals or together with others, to have influence and be heard in society. Figure 1 below depicts the major concepts of the CA and their relationships.

Figure 1

Visual Representation of the Concepts of CA



Note. Adapted from Robeyns, 2005.

The capability approach has been recommended as an appropriate framework to study societal issues such as social exclusion and inclusion in the information society (Andrade & Doolin, 2016; Zheng & Walsham, 2008). Human diversity is the primary reason for many people being excluded in society. The capability approach accounts for diversity through the concepts discussed above, by recognizing that internal characteristics such as age, gender and skills as well as external characteristics like social backgrounds, culture and economic status, etc., vary across individuals and contexts (Zheng, 2009). Zheng and Walsham (2008) draw on the capability approach to study exclusion in an e-society by conceptualizing social exclusion as capability deprivation. Using concepts of the capability approach, they illustrate how relational features result in different types of capability deprivation across two different case studies. Sen (2000) suggests that social exclusion could be seen as capability deprivation; exclusion in one dimension of societal life could result in deprivation in other dimensions. Therefore, social exclusion can be understood as "constitutively a part of capability deprivation as well as instrumentally a cause of diverse capability failures" (Sen, 2000, p. 5). Andrade and Doolin (2016) argue that if social exclusion is understood as deprivation of basic capabilities, then conversely, social inclusion could be understood in terms of the expansion of valued capabilities. Thus, they employ the

capability approach as a sensitizing device to understand how ICT supports processes of social inclusion for refugees in New Zealand.

Findings reveal five major capabilities; “to participate in an information society, to communicate effectively, to understand a new society, to be socially connected, and to express a cultural identity” (Andrade & Doolin, 2016, p. 412). Relatedly, AbuJarour and Krasnova (2017) adopt this framework to study the role ICTs, especially smart phones, play in enabling processes of social inclusion for Syrian refugees in Germany. Crowd sourcing, communication with government and translation services, etc. are illustrated as additional enabling capabilities for refugees. We adopt this definition of social inclusion as an expansion of valued capabilities that enable women to participate in society and build on this line of research to understand how mobile phones mediate this process of social inclusion for women. Here, mobile phones are not viewed as an end themselves, but rather as a means for these women to participate in society in ways in which they value.

RESEARCH METHODOLOGY

The aim of the study is to provide an in-depth understanding of the ways in which women promote social inclusion through mobile phone usage. We adopt a qualitative ethnographically informed approach that involved immersion in the research setting for over six months, in order to understand our participants and the social/cultural context within which they live. Data collection methods included semi-structured interviews, participant observation and focus groups. We used different methods with the aim of triangulating and thereby establishing the validity and reliability of the data (Flick, 2004).

The participants of the study were selected using purposive sampling; they were intentionally chosen based on their background of relocating to Lagos from the northern part of Nigeria and also ownership or access to a mobile phone (Etikan et al. , 2016). To ensure that participants were representative of the northern women that our study focuses on, we picked an area in Lagos that is known to have a high concentration of resettled northerners and selected women from different states of the north. Initial investigation revealed that these women had a WhatsApp group in which they used to communicate and send information. With their permission, the first author (also female) was added to the group. The goal of this was to observe the dynamics within the group and to have a better understanding of how the members interacted with each other on a daily basis.

This method helped to identify those WhatsApp group members who were the most active and to later interview them. Additionally, this method allowed us to cross-reference findings from observation with findings from the semi-structured interviews and focus groups.

Semi-structured interviews were conducted with a total of 47 women. The number of women by state of origin are described in Table 1.

Table 1
Participants' States of Origin

Number of Participants	State of Origin
5	Adamawa
4	Bauchi
4	Benue

Number of Participants	State of Origin
8	Borno
3	Gombe
3	Jigawa
5	Kano
4	Katsina
5	Niger
2	Plateau
4	Zamfara

All our participants had relocated to Lagos within 12-18 months prior to the interviews. All interviews and focus groups took place at the participants' respective houses as per their choice.

The interviews were audio recorded except for three instances where the participants expressed concerns regarding privacy and confidentiality of the data. In these cases, the interview responses were handwritten and later read to the participants in order for them to verify their answers.

Interview questions were generated based on concepts of the capability approach and also included questions regarding what participants valued the most, how they were finding life living in Lagos, the differences associated with culture, how it affected them, and also the impact of all these on their integration into society. Each interview lasted for an average of 45-60 minutes and 60-90 minutes for the focus groups. Interviews and focus groups were conducted in Hausa, except for the ones carried out with women in Benue. Their interviews were conducted entirely in English. The interviews in Hausa were later transcribed and carefully translated into English. The transcribed qualitative data was analyzed using Braun and Clarke (2006) thematic analysis. The phases followed were as follows; firstly, all interviews and field notes were transcribed and translated into English, after which we carefully read and re-read the data in order to familiarize ourselves with the data. The second stage was about generating initial codes and searching for relevant themes. The process was iterative, during which emergent patterns in the women's use of their mobile phones were identified. Specifically using concepts from the capability approach as sensitizing devices, the themes were further analyzed and categorized according to how these women felt their lives were enhanced through these uses and more specifically, its implication on their understanding of social inclusion as suggested by Safa' AbuJarour and Krasnova (2017) and Andrade and Doolin (2016).

Case

Ikoyi Obalende Council Development Area was created on October 2003 along with 36 other local council development areas (LCDAs) in Lagos state. The LCDA is known for a high population of northerners, predominantly Hausas. It has a close proximity to the famous Balogun Market and affordable housing in comparison to the other more affluent parts of Ikoyi. This makes it a popular location for migrants from the north looking to settle in Lagos. The women of our study are all from the northern parts of Nigeria and have fled the north alongside their immediate families (husband and children) due to ongoing conflicts; from terrorism in the north east, clashes between farmers and herders in the north central and insistent kidnappings in the northwest. They have come to Lagos with the aim of

living a better and more secure life. Our participants are all married, self-employed and own/have access to a mobile phone. Their ages range from 20-53. Their educational backgrounds include a university degree, national certificate of education (NCE), secondary school leaving certificate, primary school and Islamic education. We investigate how their usage of mobile phones has enhanced their capabilities and its implications on their social inclusion.

FINDINGS

Our preliminary analysis of the data revealed that the women of our study rely on their mobile phones for communicating with others and as the primary tool for accessing the internet. Features such as calling and texting were the most used. For our participants that owned a smart phone, they used a variety of applications such as Facebook, WhatsApp, and mobile banking applications. Findings indicated WhatsApp as the most used application amongst the women, with about 80% of our participants belonging to different WhatsApp groups.

The capability approach as discussed earlier distinguishes between commodities (goods and services), functionings (beings and doings), and capabilities. The approach recognizes the significant importance of commodities to well-being. Individual conversion factors are thought to influence the extent to which a person can utilize commodities to generate capabilities. Commodities, which also refer to resources in our case, were their mobile phones and WhatsApp and Facebook. We focused only on WhatsApp and Facebook because it was the only applications that a majority of our participants were using, mainly due to ease of use and also low mobile data consumption. We discuss our findings along the lines of identifying capabilities in terms of what the women reported they were able to realize using their mobile phones. Also, we highlight the different conversion factors and how they relate to our findings. In Table 2, we show examples of selected relevant themes and quotations from qualitative transcripts.

Table 2

Examples of Themes from Focus Groups and Interviews

Sample Theme	Sources	Sample-Coded Excerpts from Transcripts/ Field Notes
Financial Inclusion	Pre-reading of transcripts and theoretical concepts	<p>"After my customers see a product they like on my display, they make a transfer to my bank account and I have the product delivered to them. I never payed attention to mobile banking before but now it has become very important for my business."</p> <p>"I work as cleaner in the estate close to us, the man I work for doesn't live in the house permanently. He comes and goes. But this doesn't affect me as every month he transfers my salary to my bank account."</p> <p>"Whenever I needed to raise big sum of money, I would join an <i>adashe</i>, collect my money and make an order. And then pay back monthly without interest, this really helps me enjoy and do things I could not have done before."</p>

Sample Theme	Sources	Sample-Coded Excerpts from Transcripts/ Field Notes
Collaborating with Local Women	Pre-reading of transcripts and theoretical concepts	<p>"Mama Toyin is the first person I call when I'm looking for a certain product, she tells me the Yoruba name of the item, where to find it and the price range. Sometimes, she gives me the number of the sellers and tells me to tell them she sent me."</p> <p>"I went to the market one day to pick up some laces and I had some <i>turaren wuta</i> with me, they were smelling very nice that the lady in the shop asked if I would sell it to her. I did, and from then onwards, I have been supplying both the lady and her neighbors with it."</p>

Income Generation

Resettling in Lagos meant our participants needed to look for ways to generate income and financially support themselves. Analysis of data showed that a majority of our participants used their mobile phones for income generation. This is believed to be facilitated through multiple affordances of a mobile phone and mobile-based applications such as WhatsApp. Findings revealed that the women in our study used their mobile phones and WhatsApp to advertise, buy and sell products, maintain relationships with their customers/employers as well as seek employment. They termed this as doing "online business". Lagos as the financial capital and most developed city of Nigeria offered these women numerous opportunities to engage in business activities. The most common was the textile business where they would sell laces, *atampa*, *shadda* and brocades. They would go to the market, snap a few pictures of the textiles and then advertise them on WhatsApp. An interested person would chat with them or in some cases call. When the prices were agreed upon the buyer would make payment via a bank transfer and the items would be sent through the public transportation system. This was quite easy for the women, as little or no startup capital was required to begin the business. From our data and also during the fieldwork, it was observed that this was done through the support and encouragement of women that had been in Lagos longer and that were more established and familiar with this kind of business:

At first, I didn't know how to start doing business, all my neighbors were involved in one trade or the other, so I asked my neighbor, she sent me a few pictures and told me to upload them on my WhatsApp status. Interested buyers would send me their money through mobile banking and I would send it to them via public transport. This is how I started and now I also help others.

While initially, the trade between the northern women and the Yoruba market women was one-way; with time and after continued interaction, it became a two-way stream. Now the northern women also sell items local to them such as veils (*mayafi* or *gele*) and *turaren wuta* (locally made *oud*) to the southern women. As one of the participants notes:

I went to the market one day to pick up some laces and I had some *turaren wuta* with me, they were smelling very nice that the lady in the shop asked if I would sell it to her. I did, and from then onwards, I have been supplying both the lady and her neighbors with it).

Also, advertisements on community-based WhatsApp groups helped the women to sell home-made food and snacks. Some of the women made local Hausa foods such as *masa*, *danwake* and *dambu*. The women also mentioned using the phones for customer relationship management, by calling and sending customers text messages regarding new products or availability of services.

A strong sense of collaboration and determination to support each other earn money was observed among the participants. When asked why this was so, the participants mentioned their northern culture as the primary reason.

Sense of Belonging and Social Connectedness

Maintaining social relationships is a fundamental part of the culture in northern Nigeria, especially for the Hausas. The Hausa term for it is *zumunci*. *Zumunci* in the Hausa culture is one of the strong elements that binds people together. It strengthens the links among relatives, friends, and colleagues, and plays a very important role in the society (Ibrizimow et al., 2018). Mobile phones and social media applications such as Facebook and WhatsApp play a vital role in terms of allowing our participants to enact *zumunci*. Our findings show that it is crucial for women to keep their relationships with family and friends alive despite resettling in a new city. Families here refer to extended families, both paternal and maternal. Friends include former colleagues, school mates, childhood friends, former neighbors, etc. For a majority of our participants, WhatsApp groups were the primary source of information about family and friends. One of the women reports that:

We have a family group, any information regarding both good and sad news is posted on the group. If someone is getting married, or had a baby, or is sick or when someone dies, it is all posted on the group. I follow the group religiously to be up-to-date on what is happening with my family.

Another usage common to all our participants that had smartphones was sending/receiving pictures and making video calls.

I always ask my family to send me pictures and I also send them regular pictures of me and the kids. Now it has become a norm on our family group for everyone to upload pictures especially during celebrations like weddings. Seeing what's going on makes me feel less left out.

The value that these women place on staying in contact with family and friends is evident in their usage of their mobile phones and applications. Being able to maintain relationships for our participants is identified as one of the things they cherish the most.

Financial Inclusion

Our participants described using their mobile phones to access financial services particularly mobile banking. A bulk of the transactions they carried out were receiving payment for products from customers and paying suppliers for products. While few of our participants mentioned that they were already familiar with mobile banking before arriving in Lagos, others reported that the nature of trade they found themselves in motivated them to adopt mobile banking:

After my customers see a product they like on my display, they make a transfer to my bank account and I have the product delivered to them. I never payed attention to mobile banking before but now it has become very important for my business.

Another major way in which women utilized mobile banking was to send funds to relatives back home. A majority of the women we interviewed mentioned sending money to their families in the north. Participant "Asabe" from Adamawa describes how using her mobile phone for banking services contributes to her financial independence in Lagos:

I work as a cleaner in the estate close to us, the man I work for doesn't live in the house permanently; he comes and goes. But this doesn't affect me as every month, he transfers my salary to my bank account.

Mobile banking offers many services such as access to credits and loans. Our data showed that none of the participants had ever taken a loan or other credit services from the bank. This is in line with existing research on women and mobile banking adoption (Kemal, 2018). Rather, the women in our study were involved in traditional cooperatives known as *adashe*. Here, the women contribute a fixed sum weekly or monthly and one person takes the entire savings for the month and it continues until the last member in which case it starts again. The *adashe* is managed by a leader called *uwar dashi*. Payments and disbursement are part of the responsibilities of the *uwar dashi*. The women in our study were involved in online *adashe*, where they made mobile transfers of the monthly fee to the leader of the *adashe* and vice versa. In the case of an emergency or a pressing situation, a person was allowed to switch places if the concerned member agreed. This was very useful especially to our participants that were into business as reported by a participant :

Whenever I needed to raise a big sum of money, I would join an *adashe*, collect my money and make an order. And then pay back monthly without interest, this really helps me enjoy and do things I could not have done before.

From our findings and observations, it was evident that our participants were more comfortable with this form of loan and tended to trust their *adashe* leaders more than banks and other financial institutions. Money collected from *adashe* is interest-free and did not require signing of any formal contract. These were reasons some of the women mentioned as to why they preferred this form of loan.

Furthermore, due to the pervasive nature of mobile phones, our participants mentioned that they were involved in *adashe* groups with people that were in other states of the country. This led to us probing further to ask how they could trust that kind of arrangement. The women mentioned that it had to do with believing that a person would not want to damage her own reputation. We asked the women what happened if a person defaulted i.e., collect their bulk share and then refused to send in their monthly contribution. They mentioned that this rarely happened but in a situation that it did, such a person would be tracked. Registering to the group was done using a phone number and all transactions were online. The administrator of the *adashe* (*uwar adashe*) had the bank account details of every member and in such a case, would forward it to the authorities if necessary. Another way they handled defaulters was by posting the person's phone number, picture and other details (in a few cases) with a warning message alerting the public of the individual's fraudulent nature. According to the women in our study, Facebook is the preferred and most used platform for posting these kinds of messages owing to its wider user coverage. A majority of our participants expressed that they had come across such messages. One participant reported:

I was in a commercial group and one of the members sent us pictures of some items for sale. After a few minutes, a different member sent us a forwarded Facebook post where people had written that the particular lady would collect your money and refuse to send the item. The message kept circulating until the lady shutdown her platforms. The comments under the post mentioned how she had duped many people.

Through usage of their mobile phones and applications like WhatsApp and Facebook, the women in our study were able to ensure they had access not only to savings and credits but also protection against fraud.

Preserving Cultural Identity

Maintaining their cultural identity was another opportunity that our participants placed a lot of value on. Using their mobile phones and WhatsApp community groups, the women were collectively able to

maintain who they were and where they came from. For example, “Dije” a woman from Kano describes how downloading and listening to Hausa songs helps ease her feeling of loneliness and nostalgia “Whenever I feel sad and miss Kano, I listen to Ado Gwanja [a famous musician from Kano], this makes me feel better and connected to my hometown.”

Additionally, another activity that women engaged in to feel a sense of cultural belonging was organizing events and outings for themselves and most especially their children. Teaching their children about their cultural heritage was something our participants deemed very important. One of the group administrators we interviewed reported that:

We organize regular events for our children where we all meet up to chat, eat and interact. We cook local foods such as tuwo, gurasu, and masa and dress up the children in traditional wears. This helps us to teach our children our fundamental culture of *zumunci* and togetherness.

All discussions and arrangements about the venue, food, transportation, and money to be contributed were held virtually on the groups. A person seeking clarification would call any of the organizers for more information.

Seeking Relevant Information.

As part of the process of settling in a new society, information requirements range from directions about the correct route to places, to information about practices and regulations of the new society. In today’s society, information practices are essentially moderated by ICT (Díaz Andrade & Doolin, 2019). Our respondents mentioned that their mobile phones and belonging to the WhatsApp groups helped them find information easily and conveniently:

Whenever I was looking for an item and wanted to know where to find it, I would simply ask on the group or sometimes pick up my phone and call one of the women I met there. They would explain to me the exact market where to find it.

The more educated women reported using Global Positioning System GPS services to check for routes, locations and traffic. However, the majority of the women preferred calling people that had been there longer or natives such as Yoruba women they did business with:

Mama Toyin is the first person I call when I’m looking for a certain product, she tells me the Yoruba name of the item, where to find it and the price range. Sometimes she gives me the number of the sellers and tells me to tell them she sent me.

Our participants explained that this was very important as once the sellers, especially in the market, figured out you were a newcomer and not familiar with the environment, you became an easy target for exploitation or fraud. They would double the price of the product they were selling to you or in some cases sell a fake product. Another way the women dealt with this was by organizing group trips to the market. This was observed during the participants’ observation we embarked on. The women would post a question on the group like “I am going to this market on this date, at this time, anybody interested?”

You would see responses immediately. This, as reported by the women, gave them a sense of security and also helped them to save transportation costs, especially in the case of markets that were far away from where they lived.

Collaboration with Local Women

Interacting and socializing with locals in a new host society can provide refugees with both practical and emotional support (S. a. AbuJarour, Krasnova, & Hoffmeier, 2018). This was the case for the women in

our study. Through their mobile phones and WhatsApp groups, they formed a relationship with the local women as evidenced earlier. For most of our participants, the relationship started as a strictly business relationship but has now grown into stronger social relationship of friendship. One of the women reported:

My relationship with one of the market women has really grown, I always call her to ask about a lot of things I need help with and she's always willing to help. She even sewed a traditional Yoruba dress for my baby on her birthday. I was really happy about it.

Our participants turned to the local women for information about the society including government services and how to access them. Being socially connected to and maintaining a network with locals is reported to ease the process of settling down and integration through access to better knowledge about the host society.

Conversion Factors

As mentioned earlier, a core concept of the capability approach is the notion of conversion factors. Conversion factors determine the extent to which a person can convert a resource into a functioning (Robeyns, 2006). Conversion factors are often categorized as personal, social and environmental. From our data, we aimed to understand not only what conversion factors are necessary for the women to be able to use their mobile phones to enhance their wellbeing but also how these factors influenced this process for them. We found that although personal factors such as literacy and technical knowledge were important for our study, for participants using the mobile phone, environmental and social factors played a more substantial role in the degree to which the women could convert the resource (mobile phone) into functioning.

Under the category of environmental conversion factors, we found a lot of factors in our context that helped the women to realize their goals in terms of social inclusion. For example, the telecommunications and power infrastructure in Lagos is one of the best in the country. From our interviews and also observation, there were no reports of interruption or bad connections that are rampant in other parts of Nigeria. Furthermore, as the financial capital of Nigeria, Lagos provided a stable economic environment with a lot of business opportunities for one to access.

Additionally, the social norms and practices in Lagos greatly helped the participants of our study with regards to using their mobile phones regarding achievements and motivation for empowerment. While most Nigerian cultures are patriarchal in nature, there are significant differences in the roles women play across different ethnic groups (Makinde, 2004). Yoruba women are reported to be more financially independent than their counterparts in the north, they are successful businesswomen that enjoy a lot of freedom in relation to generating income (Olarenwaju & Olabisi, 2012). This greatly influenced our participants with regards to their commitment to generating income. Furthermore, the norms and practices in our specific context also influenced the husbands of our participants. From our interviews, the majority of the women mentioned that their husbands were very supportive of them and encouraged them in their activities. To investigate this further, with the help of a male research assistant, we conducted a focus group with five of the husbands of our participants where the men confirmed the women's claims. They mentioned how different norms and practices influenced their decisions and readiness to support their wives. As one reported:

In Lagos, it is a normal thing for your wife to make money and go out every day. Back home, (Zamfara) they would frown upon this and say "you don't have control over your house." So here, I don't mind because everyone is doing it.

Also, despite the enabling conversion factors discussed above, the women in our study mentioned some limiting conversion factors; quality and features of the mobile phone, gender role and cost of data subscription. The first limitation is related to the quality of the phone. The cheaper the phone the less the quality of features such as the camera. For our participants the camera was a very important feature as a large amount of their businesses were carried out online. The women that did not have mobile phones with good camera's had to rely on friends that had one or face the risk of a customer returning a product because it looked different to what they saw in the picture. The second limitation mentioned by our participants was the cost of data subscriptions. The women noted that although data bundle costs had decreased significantly in recent times, the rate at which the data ran out had increased dramatically. This meant that they had to constantly renew data bundles in order not to miss any new information or product that might be posted. Another challenge mentioned by our participants was their gender role. Duties associated with the multiple identities of our participants as mothers, wives and businesswomen meant they had to continuously negotiate these different roles. This greatly affected our participants as there were certain periods in a day where they could not engage in business or social activities. This was because they had to perform tasks such as cooking cleaning and taking care of the children. One of our participants noted that:

Every day we go to the market we have to make sure that we finish what we are doing before 2pm. So that we make it home on time before the kids return from school. And going out during the weekend is not possible. So even if a customer wants an item, they would have to wait.

Hence, this illustrates that for a women's capabilities to increase, it is not always enough that they have access to ICT and that the ICT supports their capabilities.

DISCUSSION

For many years now, ICTs have been argued to play an essential role in the empowerment and social inclusion of marginalized people (Qureshi, 2015; Trauth, 2017). Our findings support this view by showing how ICTs such as the mobile phone and social media applications like WhatsApp and Facebook could be used as vital tools for the integration and overall social inclusion of women. In this paper, we base our evaluation of social inclusion for women in terms of the extent to which they are able to effectively participate in their new society. In the particular context of study, women had left their homes to come to Lagos with the hope of a better life. Resettling and integrating into this new society was essential for participants.

Our findings revealed a number of capabilities that are enabled for women through the use of ICTs. These capabilities empower women in their goal of integrating into their new environment and promoting social inclusion; to generate income, to be financially included, to preserve a cultural identity, to seek relevant information, to collaborate with local women, to be socially connected and have a sense of belonging, etc. Social inclusion as adopted in this study represents a relational, multi-dimensional and dynamic concept. The findings in our study reflect all these different characteristics of social inclusion.

Our findings capture the social as well as the economic aspects of social inclusion and clearly show how capabilities in one dimension influence and reinforce capabilities in another.

These findings are in line with recent studies on ICTs for social inclusion and marginalized groups with regards to our participants maintaining family relationships, their cultural identity, establishing relationships and forming networks with locals, and participating in an information society (Safa' AbuJarour & Krasnova, 2017; S. a. AbuJarour et al., 2018; Andrade & Doolin, 2016; Díaz Andrade & Doolin, 2019).

In addition, our findings showed how the women in our study used mobile phones as a means for income generation and financial inclusion. These findings echo previous studies that have illustrated how mobile phones are used for income generation by women, especially in CDEs (Bailur & Masiero, 2017). One interesting aspect and potential use of mobile phones that emerged from our findings was how it enabled our participants to engage in *adashe* (saving circles). Although the similarity to the findings reported by Svensson and Wamala Larsson (2016) is there, our findings are different in a few ways. Firstly, the saving circles in our case study were purely online. The collection of monthly contributions and distribution of lump sums are done purely digitally through mobile banking. This in turn, had implications for financial inclusion. A bank account and mobile banking was a pre-requisite to joining the *adashe* groups. Secondly, the *adashe* groups our participants were involved in were not limited to only their immediate circle. Rather, the women in our study belonged to different groups that had members across the country.

The issue of social norms and practices influencing how and to what extent women are able to utilize ICT emerge from our findings as discussed in many studies (Abubakar & Dasuki, 2018; Bailur & Masiero, 2017; Larsson & Svensson, 2018; Masika & Bailur, 2015). In our study, we found that certain social norms and practices in Lagos positively influenced the process of social inclusion for participants. The women in our study were able to freely pursue income generating opportunities and in turn support their families back home. Women going out to make money is generally considered as normal and acceptable in Lagos in contrast to what is found in some other states of Nigeria. This echoes the arguments made by (Webb and Buskens (2014)) on how social structures influence the extent to which women are able to utilize ICT. Also central to our findings is the concept of agency. It is evident that the women of our study exercise agency in different ways. Firstly, with regards to their choice to use this particular resource (mobile phone) in ways that allows them to participate in their society, our participants position themselves as active drivers rather than passive recipients of change as this was not an intervention from government or other non-governmental organizations. Secondly it is evident that the women of our study exercise agency both individually and collectively through their participation. For example, participation in markets, formal (mobile banking) and informal (*adashe*) institutions, support for their families back home and the solidarity the women show to each other. In these ways participants ensure they are in charge of and in control of their own process of social inclusion.

CONCLUSION

In this paper, we have examined the use of mobile phones by a group of resettled northern women in the city of Lagos, with the aim of understanding how mobile phones contribute to social inclusion. We conceptualize social inclusion in terms of the women's ability to effectively participate in their new society in ways in which they find meaningful and have reasons to value. Our findings complement existing studies by not only illustrating the capabilities that are enabled for women through mobile phone use but also highlighting existing environmental and social factors within our particular context that influence the process of mobile phones contributing to the social inclusion of women. We draw on the capability approach and its different tenets to capture the relational and multidimensional nature of social inclusion and the importance of women's agency that is often ignored in many prior studies.

Although our study focused on a particular group of women i.e., northern Nigerian women, our findings could be leveraged to improve the situation of other disadvantaged women in other parts of Nigeria and other CDEs. We argue that mobile phone use promotes social inclusion of women by expanding the opportunities available to them to enact their agency in ways that enhance their wellbeing and agency freedom. In addition to this, the relational and multidimensional nature of social inclusion requires a thorough understanding of existing environmental and social arrangements as they vary across different

contexts. Our findings have implications for socio-economic policies targeted at ensuring the inclusion of women in CDEs. Specifically, in Nigeria reports have shown high rates of poverty and marginalization amongst women, with the government implementing programs to tackle these issues. Therefore, understanding how social inclusion occurs as well as factors enabling/restricting the social inclusion of women would enable policy makers to implement policies that would significantly enhance women empowerment and development.

As part of our future research, a concept we would like to investigate further is the concept of affordance which is defined as “the possibilities for goal-oriented action afforded to specified user groups by technical objects” (Markus & Silver, 2008, p. 622). We aim to understand the relationship between mobile phones and their properties, and the opportunities they provide to women in relation to social inclusion.

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