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Empowerment in their Hands: Use of WhatsApp by Women in Nigeria

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Abstract

Information and communication technologies (ICTs) are reported to hold a lot of promise for sustainable development, poverty reduction and the empowerment of marginalized groups, such as women and minorities in developing countries. This paper discusses the relationship between women's empowerment and ICTs, by investigating the promise of empowerment associated with the use of WhatsApp by women in Nigeria. It draws upon Sen's Capability Approach (CA) to explore some implications of the use of WhatsApp mobile application on human development. We employed Sen's five instrumental freedoms to evaluate how WhatsApp has empowered women by concentrating on the opportunities provided for expanding their freedom to participate in social, economic and political activities. Our analysis shows that WhatsApp can contribute to the empowerment of women by enabling their freedoms to participate in developmental activities; however some contextual factors impede the ability of the women to take full advantage of these developmental opportunities that WhatsApp offers. The paper concludes with some implications for policymakers advancing an agenda for "ICTs for Development".

Keywords (Required)

ICT, WhatsApp, empowerment, women, Nigeria

Introduction

For many years now, Information and Communication Technologies (ICTs) such as mobile phones have become widespread in rural and low-income communities. This has resulted in positive beliefs about the potential role of mobile phones in bringing about significant societal transformations which could include the promotion of gender equality and women empowerment. This has been a major focus of the Millennium Development Goals, and subsequently the UN Sustainable Development Goals. Although this promising role of ICTs for women empowerment in Africa has long been discussed, relatively little is known about how, when, and why such empowerment occurs (Wheeler, 2008). Very little empirical evidence exists to show that ICTs do ultimately contribute to women empowerment (Dasuki, Abbott and Azerikatoa, 2014). The few that exist are lacking rigor, clarity and solid underpinning around research methods (Heeks, 2010).

In their book *“African women & ICTs: Investigating gender, technology and empowerment”*, Buskens and Webb (2009) noted that within the African continent, women are gradually participating in the information society and are doing so in various ways. However, there is less work on ways in which ICT can serve more strategic and broader developmental goals for women in Africa (Thompson and Walsham, 2010). Thus, there has been a call for more emphasis on the contextual and social elements that characterize the role of ICTs for women’s empowerment in developing countries (Basika and Bailur, 2015; Buskens, 2010). Building on this line of research, the study examines the question: *How have women in Nigeria responded to and have been empowered by the use of WhatsApp application on smart phones?*

Using interviews and focus groups with women from the city of Kano, this study provides a case narrative through which we can understand how these women interpret the empowerment opportunities and freedoms technology has provided to them. This research does not aim to explain the overall WhatsApp experiences of all the women in Nigeria, not even majority of Nigeria women but instead to concentrate on the WhatsApp enhanced experiences of women living in a community. The subsequent section discusses the relevant literature on the notion of empowerment. Next, a discussion on the relationship between empowerment and ICTs is provided. This is followed by a section providing details of Sen’s capability approach (CA) and some selected key concepts upon which the authors will draw to evaluate the contribution of WhatsApp to women empowerment. The research method, research setting and the analysis of the case are then presented. The final section concludes the paper and demonstrates implications for research and practice.

Literature Review

Notion of Empowerment

The notion of empowerment is highly debatable and this could be due to the various interpretations of power and the conflicting conceptualizations on the centrality of power within the development process (Gigler, 2004). Parpart et al. (2002) noted that the term empowerment is a very complex notion due to its unpredictability and requires attention to the specificities of time and place. In its simple form, empowerment can be referred to as any process whereby people can gain increased control over their lives either independently or mutually (Somerville, 1999). Narayan (2005) on the other hand defines empowerment as a process that enhances self-confidence, self-direction, autonomy, and self-worth. Although Cornish (2006) cautioned that vaguely conceptualizing empowerment simply as anything that

can be enhanced usually omits the numerous and conflicting natures of powers and that individuals enact or experience. For the purpose of this paper, we embrace Kabeer's (2001, pg. 19) definition of empowerment as *"the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them"*. Here empowerment is not viewed as something to measure or as an increase in control or self-confidence. Rather empowerment is seen as the ability to take an action and as something to be qualitatively specified in terms of a concrete domain of action (Dasuki, Abbott and Azerikatoa, 2014).

The emphasis here is on the process of change, instead of its outcome, and on the agency of individuals in this process (Oreglia & Srinivasan, 2016). In this context, agency can be understood as the human capacity to make choices and impose those choices on the world (Buskens, 2010). This view of empowerment concentrates on enabling individuals to develop their full range of human capabilities (Gigler, 2004), and resonates with Amartya Sen's (1999) capability approach, that sees development as the process of expanding the real freedoms that people enjoy to lead the lives they have reason to value. Sen (1999, pg. 18) also emphasizes the empowerment of the poor by stating *"greater freedom enhances the ability of people to help themselves and to influence the world, and these matters are central to the process of development"*. In *"Development as Freedom"*, Sen noted that the *"extensive reach of women's agency is one of the more neglected areas of development studies, and most urgently in need of correction."* He emphasizes *"an adequate recognition of political, economic and social participation and leadership of women"* to be a crucial aspect of the capability approach (Sen, 1999, p. 203). In this paper, we study the extent to which the agency and freedoms of women have been enhanced as a result of their everyday use of WhatsApp.

Empowerment through ICTs

A significant amount of research has been pushed forward arguing that ICTs have direct relationship with women empowerment and ultimately contributes to it via the provision and access to ICT tools (Badran, 2015; ITU, 2005; Maier and Nair- Reichert, 2007, Jagun et al., 2008). Studies showing this direct linkage between ICTs and productivity have usually been conducted at the country and organizational levels (Roztock and Weistroffer, 2015). Research directed at the individual level to show these linkages is usually rather scarce. Chew et al (2011) argue that despite the positive impact of ICTs on small business owned by women, there are still some specific dynamics that limit productivity. Furthermore, Dasuki Abbott and Azerikatoa (2014) challenge this technological deterministic approach to argue that there is no direct relationship between ICTs and human empowerment, but suggest that a dynamic relationship exists between ICTs and the social, economic, cultural and political context that sustains it. Masika and Bailur (2015) noted that even though ICTs may be able to reshape the micro dynamics of women empowerment, they are not ultimately a radical tool.

This perspective highlights that empowering the women by solely providing access to ICTs is problematic as impediments still exist that hinder those who have access to ICTs from taking full advantage of the opportunities they offer (Warschauer, 2003). Nyemba-Mudenda & Chigona's, (2017) study on pregnant women showed how age, literacy, lack of resources, poor infrastructure, religious beliefs and position of women in society impeded the empowerment abilities of mobile phones. Trauth (2013) and Garcia (2011) pointed out that women in particular are affected by these impediments and are easily left out of actively participating in the information society. This has led to a call for more research on the notion of agency and empowerment in women's lives (Masika and Bailur, 2015). In this paper, we interpret empowerment as the expansion of capabilities to lead a valuable life (Kabeer, 2001). We believe ICTs can contribute to women's empowerment; however the social conditions

that influence how an individual can convert ICTs in order to achieve empowerment are more crucial than ensuring the accessibility of ICTs. This echoes the findings of Bailur and Maseiro (2017) in a study on the affordances of mobile internet for income generation where significant differences between young men and women in Ghana, Uganda and Kenya were observed. While the young could convert the opportunities into actual realities and generate income, some women due to cultural stereotyping and gendered barriers were unable to do so.

While discussing innovation and development through the lens of the Capability Approach, Jimenez & Zheng (2017) presented how membership of a Zambian Tech Hub supported collaboration and learning, enhanced agency, encouraged a sense of community and promoted gender equality. These findings offer a broader view of the relationship between innovation and development than the narrower entrepreneurial focus that dominates most discourse on innovation. Similarly, a study on an mHealth intervention for pregnant women in Malawi from a capability perspective revealed how participants gained informational capabilities, economic capabilities as well as self-development capabilities in addition to the health-related outcomes that the program was set to achieve (Nyemba-Mudenda & Chigona, 2017). However, there is still a call by Walsham (2017) for more gender based studies in order to advance the understanding of ICTs for development. This echoes the scarcity of gender studies about women using ICT (Trauth, 2013): Is the use of these ICTs changing their lives for the better? If yes, in what ways are they changing? What are the challenges they face? These are the questions this paper aims to answer using a case study of women in the city of Kano, Nigeria. We believe that the perspectives of African women on the use of ICTs need to be reported and this knowledge needs to be shared with the world by researchers in Africa.

Using the theoretical lens of the capabilities approach, the paper specifically explores the contributions of WhatsApp on the freedoms of women to determine their own development as they incorporate these technologies into their daily lives. The capabilities approach allows us to conceptualize and understand the relationship between ICTs and women empowerment as being multifaceted in nature rather than the linear access and productivity representation. Women's agency here asserts that women can be actively involved in their development and their needs and aspirations take center stage. Studies that have adopted this approach have indicated findings that show more complex relationships and development outcomes that are far beyond intended outcomes.

Capability Approach

The Capability Approach (CA) is a broad normative framework for assessing societal changes in terms of the enrichment of individual wellbeing (Sen, 1999). This framework openly critiques the opulence and functional conceptualization of development that are dominant in the economic development discourse. It emphasizes "*human freedom*" which means the effective opportunities available to individuals to improve their wellbeing. CA attends to two distinct features, namely, capabilities and functionings. Sen (1999) noted that capabilities are the freedoms individuals have to achieve a set of functions while functionings are beings and doings that people value. Robyens (2005) noted that the difference between capabilities and functionings is between the freedoms on the one hand and achievements on the other. However, Alkire (2005) argues that it is important to concentrate more on capabilities rather than functionings because individuals value choices from which they can select. In "*Development as Freedom*", Sen (1999) argues the expansion of freedom as both the primary end and the primary means of development. Sen (1999) proposes five distinct instrumental freedoms that directly or indirectly enable the overall freedom available to

people to live a valuable life. They include: political freedom: freedom of expression and participation; economic facilities: freedom to participate in economic activities; social opportunities: entitlements to health and education; transparency guarantees: freedom to interact with one another under guarantees of disclosure and lucidity and protective security; social safety nets for preventing the affected population from being reduced to abject misery.

The realization of such wellbeing is further determined by individual and structural variations in terms of social, personal and environmental factors. Clearly, the capability approach motivates a people-focused approach to development, directly and indirectly taking account of issues such as empowerment (Kivunike et al, 2011). However, CA has been criticized for being individualistic and not taking account of social structures and groups (Devereux, 2001, Corbridge, 2002, Navarro, 2000). Others have called it an incomplete and infeasible framework (Robeyns, 2005) noting that it is problematic to unravel the balance between its conceptual richness and its potential to be operational in practice, research and development (Kleine, 2010). Despite these criticisms, there has been a significant increase in the use of the framework within ICT4D studies. Coelho et al. (2015) argue that the CA provides a rich conceptual framework for evaluating ICT4D interventions and helps to unravel vital issues surrounding the adoption and use of ICT tools for socio-economic development.

Capability Approach and ICT4D

CA has been applied and operationalized to further understand the implications of ICTs within the development discourse. One body of ICT for development research has operationalized CA to understand how ICTs affect and influence the thinking on equality and social justice. For example Toboso (2011) discusses the significance of human diversity by drawing on the CA to provide a theoretical analysis of the wellbeing of people with disabilities - an area which ICT plays an important role. Andrade and Urquhart (2012) focus their discussion on the political liberties associated with ICT for development interventions. They apply Sen's political freedom to provide a theoretical analysis of the contributions of ICT to political freedom of citizens given that these freedoms are influenced by several institutional factors. Concentrating on ethics in computing, Johnstone (2007) discusses the appropriateness of CA within the domain of technology ethics as it enables the inclusion of normative and descriptive analysis of ICTs in terms of values and needs. Other bodies of work have empirically applied language of capabilities, functionings and conversion factors to evaluate the design, implementation and use of ICT4D interventions. Zheng and Walsham (2008) provide a good example of empirical application of CA in ICT4D research. They take a different perspective to engaging in discourse on social exclusion in the e-society, using two empirical studies of health systems in South Africa and China. They conceptualized social exclusion as capability deprivation, affecting wellbeing and agency. Their study shows that ICT4D policies need to move beyond solely providing access to technology and pay more attention to socio-cultural context in ensuring effective utilization of information and channels of communication, which should serve to enhance people's opportunity to participate in human developmental activities. Thapa et al. (2012) explored how ICT tools help to create or improve the social capital of communities, which in turn can lead to development by building capacity and collective action using a case study of an ICT4D intervention in the remote region of Nepal.

In sum, the CA has been applied in various case studies across the ICT4D research (see Kleine, 2010; Hatakka & Langsten, 2012, Grunfeld et al., 2011, Dasuki and Abbott, 2015, Nyemba-Mudenda & Chigona, 2017). However, the majority of studies within the literature using CA for evaluation of ICT4D interventions have not adopted a gender perspective to their studies (Walsham, 2017). Hence, using CA, this study aims to understand why and how

women access and use ICTs, the opportunities of self-empowerment derived from the usage, and the contextual factors affecting the realization of self-empowerment. CA is considered an appropriate framework for this study due to its strength in evaluating interventions based on the enhancement of individuals' abilities to making choices that are valuable to their wellbeing. Considering the fact that CA is incomplete, this is seen as strength in this study as it allows the application of the approach to be used in various contexts without misplacing its philosophical richness (Robeyns, 2005). Thus, methodologically we examine how Sen's instrumental freedoms might be adapted to the context of WhatsApp usage by women in Nigeria to ascertain its impact on their empowerment and also the contextual factors that affect the impact.

Instrumental Freedoms	Interpretation of the Framework for study
Political Freedoms	How have mobile phones provide women the abilities to exercise their political liberty?
Economic Freedom	How have mobile phones provided women economic facilities such as access to finances and employment outside home?
Social Opportunities	How have mobile phones provided women ability to access education and health care?
Transparency Guarantees	How have mobile phones provided women the ability to have an open and transparent dealing in business, with government and citizens?
Protective Security	How have mobile phones provided women the ability to access the protection of social security net and emergency facilities?
Conversion factors	What personal, social and economic factors influence the use of mobiles by women to empower themselves?

Table 1 Interpretation of the Framework for study

Research Methodology

The study adopted a qualitative research method to understand the social context of the information systems in use (Oates, 2006). The research took place in a small and predominantly Muslim community in Kano, Nigeria, December 2016. The ward has a population of about 8000 people. Kano state accounts for one of the largest mobile phone subscribers of about 7.81 million out of the 60 million smart phone users in Nigeria (NTS, 2016). The majority of these active mobile subscribers use WhatsApp as their primary social media platform. WhatsApp is a cross-platform messaging and Voice over IP (VoIP) service owned by Facebook. WhatsApp's popularity in Nigeria has eaten into the traditional SMS (Short Message Service) and voice platforms provided by the major mobile operators such as Glo, MTN and 9mobile since the application enables users to make voice and video calls and send text messages using relatively cheap data packages. Currently the cost of a new smart phone in Nigeria is as low as 4000 Naira (approximately \$11) and subscribing for a monthly WhatsApp bundle using the network providers is as low as 60 Naira (approximately \$0.17).

This research aims to examine the extent to which WhatsApp contributes to the empowerment of women living in this community. In gathering data, the lead researcher who is an indigene of the state in collaboration with a local women's non-government organization (NGO) identified two female leaders in two women's groups within the

community. These leaders assisted the researcher in the identification and recruitment of participants for the study. Participants were selected based on how actively they were engaged in the groups and their ownership of a smart mobile phone. To select more respondents we adopted a snowball sampling approach by asking the leaders to identify other people who fitted the level of engagement criteria and demographic.

Two focus group sessions were conducted with women of the community who used WhatsApp application for their daily livelihood activities. The first focus group session was made up of 18 women and lasted for about an hour and a half. The second focus group session was made up of 23 women and lasted for about two hours. We had a large number of participants in the focus group sessions due to the inability to conduct other sessions resulting from time constraints and participants' availability. However we ensured that we were able to control the crowd and each participant was given the opportunity to share their thoughts and insights in the discussion.

A short survey on demographics and basic information regarding the ownership and use of mobile phones was administered. With focus groups, there were certain sensitive issues and themes that participants would not be comfortable discussing openly in the public. To address this, semi structured interviews were further conducted with the two women leaders to achieve an in-depth coverage across religious and health related issues.

The focus groups and interview sessions were conducted in Hausa language and transcripts were later translated into English. The American University of Nigeria institutional research review board issued an ethical approval for this study. As per the requirement of the review board, interviewers explained the objectives of the study and sought consent from each of the women prior to commencing the interviews and focus group sessions. The informed consent form states that participation in the study was voluntary and reports resulting from the study would not contain any information that could be used to identify the participants. We use pseudonyms for participants to preserve confidentiality and anonymity.

Demographic Characteristic		Frequency	Percent (%)
Marital Status	Single	9	21.95%
	Married	21	51.23%
	Divorced	8	19.51%
	Widowed	3	7.32%
Education	University Degree	9	21.95%
	Diploma	21	51.22%
	Secondary School	11	26.83%
Number of Children	0 - 2	16	39.02%
	3- 5	19	46.34%
	6 - 8	6	14.63%
AGE	Under 20	4	9.76%

	20-29	16	39.02%
	30-39	15	36.59%
	Above 40	6	14.64%
Home Financial Support	Sole Provider	6	14.63%
	Co-Finance	35	85.37%

Table 2 Respondents Demographic Data (n=41)

The women's educational background ranged from university degrees to diplomas, and secondary school. The ages ranged from under 20 to above 40. Their marital status included single women, those who were married, married with children, divorcees and widows. Some of the women co-financed their homes, some were the sole provider of their homes and some received financial support from family members (See table 2 for participant's demographic data). Questions for interviews and focus group sessions were designed using the concepts of the capability approach: background of the women, questions about their lives, their perception of mobile phone practices, how mobile phones impacted their lives, and how mobiles affected their empowerment.

The data collection and analysis were influenced by Sen's (1999) instrumental freedoms which have been discussed in the previous section. Qualitative data was gathered, categorized and analyzed using Braun and Clark (2006) principles of thematic analysis. They included a cautious reading and re-reading of the data in order to get a summary of the key themes discussed by the women. Relevant themes and quotations from qualitative transcripts are described in Table 2 to explain the coding process. Next, a set of themes were produced in relation to Sen's five instrumental freedoms, but with careful attention given to emergent topics.

Sample Theme	Sources	Sample-coded excerpts from transcripts/ field notes
Economic Freedom	Pre-reading of transcript and Theoretical Concepts	<i>"I post pictures of my products on the WhatsApp group, people go through the pictures and choose the items they want. Next I send them the price of the selected item(s). If they are ok with it we discuss the method of payment and delivery".</i>
Social Opportunities	Pre-reading of transcript and Theoretical Concepts	<i>"When I got married and left home, one of the things I missed the most was going to Islamiyyah. As a housewife I found it difficult to find time to go Islamiyyah. But with this group now I am learning from the comfort of my own home".</i>
Conversion factors	Pre-reading of transcript and Theoretical Concepts	<i>"Once an ongoing robbery was taking place at a neighbor's place, the lady did not have credits to call and she posted messages on the WhatsApp group, but due to network issues, the message came very late. By then the robbers had already concluded their</i>

		<i>operations”.</i>
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Table 3 Sample Interview Transcripts

Case Study

The Context

Kano state was created in May 27, 1967 and is situated in North Western Nigeria. It has 44 local government areas with an estimated population of approximately 13 million based on the 2006 census report (National Population Commission, 2006). This particular state has been a leading commercial and agricultural hub in Northern Nigeria, it's popular for cotton, groundnut and hide and skin. Despite being one of the major urbanized states in Nigeria, it is faced with high poverty levels that are associated with high levels of illiteracy, high unemployment, poor infrastructure, inadequate health facilities and food insecurity. The National Bureau of Statistics (2006) reports an estimated 72.3% of the population of Kano state lives below \$1 per day. These high figures are replicated across different communities in the country and women account for the majority. In the Northern part of the country these challenges have been attributed to the prevailing culture that requires women to stay at home and take care of their families rather than work (Usman, 2015). Consequently, this has resulted in women having weaker political, social and educational opportunities than their male counterparts in the society. To remedy these disadvantages some women are involved in small trading, farming, and sewing in a bid to take care of themselves and their families. As part of these efforts, some women within communities in Kano have decided to take up the use of their mobile phones to empower themselves by renegotiating their personal wellbeing and autonomy towards social, economic and political freedom.

Analysis and Discussion

We used Sen's (1999) five instrumental freedoms as pillars for the case study analysis with the aim of understanding the developmental opportunities associated with the usage of the mobile phone application; WhatsApp by women for their daily livelihood activities.

Political Freedom and Transparency Guarantees

Following the notion of development as the expansion in people's freedoms to live the lives they have reason to value; the analysis of data shows that WhatsApp enabled the women to voice their opinions and political views. In this community, there are various WhatsApp forums that are formed by the women leaders. These women leaders are female representatives of a political party in a specific electoral ward and they distribute messages aimed at mobilizing political support for their party. They deal directly with female voters and serve as an intermediary between the voters and the respective candidates. The WhatsApp forum provides an avenue for a woman leader to share updates about programs and projects being executed by the politicians. Access to political representatives in Nigeria is very difficult since a majority of them stay in the federal capital and only visit their constituencies when elections are near. As a member of the forum, a person is allowed to voice their opinion about issues in the ward that need to be addressed by the official concerned as shown in the quote below:

“Initially I always wondered on how to communicate with elected officers especially those of them located in Abuja. We only saw them during the election period but now this online

group allows me to interact with them more frequently using the women leader as the intermediary”

(Murja'atu, 34, Housewife)

Information about ongoing projects, policy making and debates were posted not only by the women leaders but also by other members of the group. This allowed the group members to have current information regarding the politics within community. Another key use of the WhatsApp groups mentioned by the respondents is to hold elected officers accountable for promises made during election campaigns. Before the creation of these groups, it was only possible for women to do this during the campaigns where the representatives are present in the community. With these groups the women could accountability from political office holders. Safiya stated that:

“Our senator made some certain promises during his election campaign after some time we still had not heard from him. I posted it on the group and other members picked up on it, we kept at it till the woman leader passed on our message. Some of the issues have been addressed now”

(Safiya, 28, Shop Owner)

This was much appreciated by the women as the gendered roles assigned to them inhibits them from attending political meetings and often results in them being excluded from political debate. Despite these encouraging benefits, some women in the focus group session mentioned cases of having been blocked or removed from the group because they criticized some of the elected representatives. Khadija noted:

“Each time we watch the sitting of the national assembly on the television, we never see our representative. This is his second term and he has never passed any bill since he got elected. I criticized him for that and told him to wake up in the group and as a result I got blocked and removed from the group. The so-called women leaders prefer we praise their political jobbers rather than put them on their feet to work.”

(Khadija, 37, Community Youth Leader)

In Nigeria citizens are usually scared to voice out their opinions or criticize political office holders. There are some reported cases where people have been arrested, for criticizing elected officials on social media platforms. The findings of this study suggest the need for reforms in the freedom of expression and speech act to enhance the right of opinion without government sanctions.

Social Opportunities

Support for learning

The inexpensive and simple form of sharing information on the groups enhanced the ability of women to learn and seek clarification about certain concepts that were unclear to them. This was mentioned repeatedly in the focus group session as one of the things women valued the most about being part of a WhatsApp group. The findings of the study showed that whenever some of the women who were enrolled in universities had problems with their courses, they would share their problems on the group chats and seek help. Women who couldn't understand their children's home assignments also asked members of the group for help on how to go about guiding their children as shown in the quote below:

“I am not very good with mathematics, once my son came home with some quantitative reasoning; I tried a couple of times but couldn’t figure out how to solve it. I snapped a picture of the assignment and posted it on the group. Within a few minutes some members had solved it, they explained it to me how they did it and I was able to teach my son.”

[Habiba, House wife, Ages 27]

WhatsApp has empowered the women to share educational information. Regarding health education, the women have been using the WhatsApp group to share information on disease outbreaks and warnings about fake or adulterated products in the market. Asabe, one of the women leaders, stated that:

“A husband of one of our group members is a health worker, so she regularly posts information regarding health practices, during the last cholera outbreak, I learnt of it from the post she made. It includes preventive measures such as washing vegetables thoroughly, adding salt while washing and boiling water before drinking”

[Asabe, Women leader, Aged 41]

National Agency for Food and Drug Administration and Control (NAFDAC) is the agency responsible for ensuring the quality and authenticity of food and drug products manufactured, imported and distributed in the country. Whenever a fake product is caught, the product is recalled and messages are shared to the general public via their website, radio and television. A majority of participants in the focus group mentioned that they get access to this vital information through the WhatsApp group they are part of and further shared it with their neighbors and family. Yar'auta, a divorcee who lives with six other neighbors in the same compound stated that:

“I read a post about a very popular malaria drug, NAFDAC have found out there were a lot of fake versions being distributed and had therefore recalled the drug and advised the public to avoid it until the issue had being resolved. I had no idea who NAFDAC was at the time. I asked on the group and some of the members explained to me. I then remembered my neighbor was very fond of the drug and sang praises of how effective it was, so I called her and told her what I had just read and asked her to avoid the drug until new information was available.”

[Yar'auta, Hair dresser, Aged 25]

Virtual Islamic Centre

All participants who took part in this study were practicing Muslims seeking knowledge about one’s religion and understanding how to practice it, is considered to be a duty of every Muslim. The majority of the women who spoke in the focus group sessions were using WhatsApp to access the “*virtual Islamiyyah*” (Islamic Study Centre). This involved them being part of a group where the “*Muallims*” (Islamic Scholars) were the admins of the groups. The conditions for joining the group differed. There are groups for advanced students where you must be a graduate from any Islamiyyah, that is, a person who has already learnt the entire Holy Quran and there were less advanced groups for beginners. Four different subjects: Hadith, Sirah, Fiqh and Tauheed were assigned to the four days of a week. On the day assigned to a particular subject, the Muallim would post the necessary material, say for instance “*Hadiths*” (Traditions of the Prophet) and then would discuss its meaning and teachings. If a student had a question, she would post it and receive prompt replies from the specific Muallim. Debates also referred to as “*Muhawara*” were also a part of the activities carried out. According to Zainabu:

“When I got married and left home, one of the things I missed the most was going to Islamiyyah. As a housewife I found it difficult to find time to go to Islamiyyah. But with this group now I am learning from the comfort of my own home”.

[Zainabu, Newly Wed Housewife, Aged 18]

There were certain rules and regulations that governed how the groups were being run. For instance all posts had to be related to religion and in line with what had been taught or was being discussed. Anything contrary to that would be deleted by the group administrators who are normally the “muallima” (teacher) and the class representative. Talatu stated that:

“Although the rules and regulations of the group had been clearly stated, some members would keep making the mistake of posting information that was somewhat important but not relevant to the group. Each time this happens the admin would delete the message and repost the regulations again in case the member had forgotten. They would apologize but a few days later some other member would repeat the same”

[Talatu, Tailor, Aged 33]

To deal with this issue, in one of the communities, the group members decided to create an alternative group, where they could post announcements of social activities, stay in touch with each other and discuss topics that were not exactly religious. In the interview sessions, Asabe, one of the women leaders stated:

“We had to form another group where members make posts about personal information such as when a member or someone closely related to the member is either sick, has a new baby or is getting married. We make arrangements that involve monetary contributions and visit schedules”

[Asabe, Women leader, Aged 43]

When asked whether this would be an additional burden on the women given the financial circumstances associated with some of them, they responded that the contributions and visits were not compulsory. In most cases the visits were delegated to the members who lived closest to the affected member and the members who were more financially stable often contributed larger amounts that would cover for those who were not. The aim was not to collect a large sum but to foster the spirit of togetherness and help each other as shown in the quote below by Murjah:

“I recently had a baby, during the naming ceremony my Islamiyyah group members attended and brought gifts for me and the baby. I introduced them to my family and was really happy with their visits. It felt like they were my second family”

[Murjah, , Housewife, Aged 23]

This sense of being part of a community was mentioned repeatedly by the focus group participants as one of the things they valued the most about being members of the group. There was a strong commitment to working together and solving problems. The women mentioned that this helped them gain more support from their families and husbands. According to Dijeh:

“Anytime I asked my husband for money or anything concerning my Islamiyyah he would give it to me. This was surprising because for some other things he would say not now or give an excuse. I asked him why and he said since it was a group thing he wouldn’t want me to be left out”

[Dijeh, House wife, Aged 38]

Also, findings of this study have shown that the WhatsApp forums have helped some of the women improve their writing and language skills especially when they make wrong spelling mistakes and are been corrected by the autoCorrect function. By texting, sending voice notes, taking and sharing pictures and videos, WhatsApp has enabled these women to be more media literate.

Economic Opportunities

The WhatsApp group forum has enabled the women to conduct business sales by marketing their products and services. These entrepreneurs usually send photos of the products and services to prospective clients to have a precise image of what they are planning to buy. A customer is allowed to choose the method of payment and also the method of delivery, that is, pay beforehand or after delivery. Kyauta, a business owner selling baby clothes stated that:

“I post pictures of my products on the WhatsApp group; people go through the pictures and choose the items they want. Next I send them the price of the selected item(s). If they are ok with it we discuss the method of payment and delivery”

[Kyauta, Business Owner, Aged 26]

These business women have also used this forum to reach out to their customers on changes in prices. With the current economic situation in country, market prices fluctuate on a daily basis. The women use the forum as a platform where they can post and discuss changes in market prices. This included the prices of the various items they sell as shown in the quote below:

“I use WhatsApp to keep my customers informed about changes and likely changes in prices of products. This helps me avoid inconsistencies with my customers”.

[Kyauta, Business Owner, Aged 26]

When asked how all this had affected their businesses, they stated that it gave them access to more customers as they could now sell their products to customers who were miles away and sometimes even in different regions and states of the country. Talatu who sells related merchandise stated that:

“ I met a lady that lives in Yola (910kms away from Kano) through WhatsApp and now she has become one of my most trusted and loyal customers, I send her products worth thousands of Naira and I have never met her physically before“.

[Talatu, Business Owner, Aged 37]

More customer reach and more sales have resulted in larger profits for them. With the expansion of the scale of their businesses, some of the women who had previously dismissed the idea of adopting mobile banking had a change in perception as echoed by Talatu who in the past preferred doing business in cash only:

“.... I always saw having the online banking platform as only useful for people that worked. However, now that I have customers in different parts of the city and country thanks to WhatsApp, mobile banking has made it possible for me to receive payment for my products in the shortest time. I now have 2 bank accounts that I use for my business”.

[Talatu, Business Owner, Aged 37]

Postings about jobs and vacancies also formed part of the discussion in these WhatsApp groups. These jobs included household jobs, events and catering. Those who were interested

usually contact the employers and interviews were arranged using WhatsApp voice and video calls. One of the participants in the focus group stated:

“My niece got a job as a hairdresser using this forum. One of the ladies posted the advert and I indicated interest for my niece. I gave her my phone and the interview was conducted via the WhatsApp video call”.

[Juwairiya, Housewife, Aged 41]

Some women complained that sometimes fake jobs were being posted on the forum. Others complained of fraudulent people joining the WhatsApp group to defraud the women of their money as shown in this quote:

“I met the random women online and she shared some of her products...I agreed to buy from her... I sent her the money and I never got my products...the admin of this group needs to find a way to verify members else scammers would keep on defrauding members”.

[Lubabatu, Tailoring Apprentice, Aged 23]

Protective Security

In our study, the WhatsApp forums allowed members to discuss security situations within their communities. As a result of past insurgency and unrest, each community has an organized neighborhood security watch group which takes the responsibility of protecting the community. These bodies have a WhatsApp group where each and every household is advised to be a member. Updates from the police, watch lists, areas to avoid and points on how to spot suspicious behavior are part of the information posted on these groups. Marliya, another woman leader who is also part of the security watch group stated:

“We usually have curfews in the community, from 10pm there is no movement within our neighborhood until 5am in the morning, however if members are expecting visitors in the night, they usually post the details of their visitors on the group and we verify them when they come in. Also, we usually post message on update of security reports from government and curfew times”.

[Marliya, Women leader, Aged 36]

For group members who were not fond of listening to the radio, the groups served as a medium to receive vital information on security as shown in the quote below:

“..... I liked going out a lot and was not a fan of listening to the radio. With the insurgency attacks in Kano I was really scared of going out and was not sure what to look out for. The group provided me with information that made me feel safer and better informed while going out....”.

[Yamma, Housewife, Aged 32]

Insecurity has led to a rise in criminal activities such as kidnappings and burglary. Whenever a person goes missing, members post pictures of the missing person. Furthermore, when the security operatives share pictures of wanted criminals, the information is also shared on WhatsApp group. Marliya, the woman leader, further stated:

“Recently, a wanted criminal was caught here in our community by the youths and that is because his pictures have been going around all neighborhood security WhatsApp groups and as such people were vigilant. This has been so helpful to our community in this difficult time where we have been faced with rise of criminal activities”.

[Marliya, Women leader, Aged 36]

However, the use of WhatsApp has not been completely effective in the provision of information to tackle security issues. Bilkisu shared her concerns:

“There was a day a robbery was taking place at a neighbor’s place, the lady did not have credits to call and she posted messages on the WhatsApp group, but due to network issues, the message came very late. By the time the vigilantes arrived, the robbers had already concluded their operations”.

[Bilkisu, House wife, Aged 34]

Recently, there have been series of attacks on telecommunication infrastructure across Northern Nigeria due to insurgency involving different rebel groups, resulting in poor mobile network and bandwidth coverage.

Commodity	Conversion Factors	Freedoms
WhatsApp	<p>Personal</p> <p>Literacy</p> <p>Technological skills</p> <p>Economic</p> <p>Owning a mobile phone</p> <p>Trust</p> <p>Environmental</p> <p>poor network coverage</p> <p>Freedom of information</p> <p>Social</p> <p>online fraudsters, ineffective monitoring mechanism</p> <p>government censorship and lack of free speech</p>	<p>Political Freedom</p> <p>Enabled the women to voice their opinions and political views.</p> <p>Access to political representatives</p> <p>Transparency Guarantees</p> <p>Provides an opportunity to demand accountability from political officer holders by ensuring the women’s concerns are heard</p> <p>Economic Opportunities</p> <p>Increased financial earnings through access to more customers.</p> <p>Access to information on job vacancies</p> <p>Protective Security</p> <p>Medium to receive security information and plan for rapid interventions in emergency security cases.</p> <p>Social Opportunities</p> <p>Opportunities for learning and improving their media literacy skills.</p> <p>Freedom to create their own online learning platform, i.e. virtual Islamiyah</p> <p>Opportunities for seeking health information</p> <p>Opportunities for improving social network and bonding</p>

Table 4 Summary of the Case Study Analysis Using Concepts of Sen’s Capability Approach

Discussion and Conclusion

This study examined how women in the Northern city of Kano, Nigeria, use mobile phones, and specifically WhatsApp, to enhance different aspects of their capabilities. Using the human development approach, the study showed that promoting economic capabilities is very essential but constitutes only one part of what is conceptualized as development. The findings of this study showed that income generation, saving opportunities, expansion of businesses

were all economic capabilities that were expanded and afforded to the women by the use of mobile phones. The use of mobile phones also led to other capabilities that covered other aspects of human development and that have different impacts on the lives of these women and their communities. Examples from our findings include political freedoms in terms of voicing their opinions, holding elected officers responsible and contributing to political decisions within their societies. The culture in most countries in Africa restricts the participation of women in policy-making - even in agendas that impact their lives (Nyemba-Mudenda and Chigona, 2017). However, the use of mobile phones, specifically WhatsApp, has given women the freedoms to exercise their agency by acting as agents of their own lives.

The use of mobile phones also provided the women with social opportunities to enhance their information capabilities. Through the use of the WhatsApp application, the women improved their media literacy and gained knowledge in the areas of health and education. Also, the women's use of the WhatsApp application not only gave them a sense of belonging within the community, but also provided them with opportunities to generate economic capabilities via employment opportunities, and for business. Lastly, the WhatsApp application provided the women opportunities and mechanisms to improve their sense of security. Thus, conceptualizing development as expansion in people's capabilities allows us to highlight the multifaceted relationship between mobile phones and development and the nuanced effects of this relationship on women using these mobile phones. The women in our study have been able to use the WhatsApp group to push the barriers of the societal norm that typecast them in gendered roles of mothers and housewives. The forums afforded them opportunities to learn from home, be active members of the political society and become successful entrepreneurs. Using this technology, they were able to become agents of their own change, make choices and force their choices on society.

To conclude we examined the ways in which Nigerian women are using WhatsApp to empower themselves. This study was informed by Sen's (1999) five instrumental freedoms; hence we used some concepts of development economics as a theoretical lens to understand the extent to which WhatsApp, as a space for communication is enabling Nigerian women to extend their capabilities. Overall WhatsApp served as a tool that contributed to the instrumental freedoms of women to participate in social, economic and political activities. However, several contextual factors such as poor network coverage, online fraudsters, an ineffective monitoring mechanism, government censorship and lack of free speech gave rise to some capability deprivation that limited opportunities accorded to the women to fully empower themselves. This study has demonstrated how mobile phone usage can be evaluated using CA by showing the relationship between commodities (mobile phones and WhatsApp connections in our case) and instrumental freedoms, and also how this relationship is influenced by various factors (personal, social and environmental factors) that either enable or restrict them.

Hence, the findings of the study echo concerns in the ICT4D literature that ICTs alone cannot ultimately contribute to human development unless arrangements are available to allow users to convert this tool in ways which should serve to enhance their freedom to participate in social, political, and economic activities. In proposing areas for potential ICT4D research, the limitation of this study is acknowledged. This study was limited to a single case study and focused only on the experiences of a small group of women who shared their subjective views on the impact of mobiles on their abilities to live a better life. The qualitative findings of this study cannot be generalized to the large population of women across Nigeria, Africa or even developing countries. Furthermore, the qualitative data were drawn from interviews and

focus group sessions where recall bias may also be a limitation (Panchanadeswaran et al., 2017). However, this limitation is counterpoised by the strength of qualitative data in providing a rich account of the experiences of women using mobiles and representation of diverse views on the ability of mobile phones to empower them. The study was carried out under severe time constraints. However, there is a scope for conducting a longitudinal study on the basis of the existing results in order to provide more insight into the impact of mobile phones on women empowerment in this context.

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