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Radio, mobile communications, and women's empowerment: Experiences in Mathare, Nairobi

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Abstract
This article presents findings from a study of young women's empowerment through the use of information and communication technology (ICT), specifically the use of radio and mobile communications, in the Mathare informal settlements of Nairobi. Data was collected through focus group discussions and in-depth interviews with young women. The findings were extrapolated through the lens of Longwe's five-stage women's empowerment framework (Longwe, 1991). Longwe posits that the empowerment of women can be viewed through a prism of ascension, the initial stage being *welfare*, followed by *access*, *conscientisation*, *participation*, and then *control*, the highest level of empowerment. The study finds that the use of radio and mobile communications has empowered many young women to engage in conversations on issues affecting them, and with useful information on how to improve their means of livelihood. At the same time, mobile communications have enabled many young women to achieve financial inclusion by engaging in income-generating activities. In addition, mobile communications have empowered young women by providing them with access to financial services and the ability to manage their finances. Such empowerment, when viewed through the Longwe (1991) framework, is a remarkable progression on empowerment by young women through the initial stages up to the highest levels of *participation* and *control*. At the same time, the study finds that the empowerment of young women through ICTs is held back to some extent by socioeconomic and cultural factors that are the result of patriarchal traditions and mindsets.

Keywords
information and communication technology (ICT), radio, mobile communications, empowerment, young women, informal settlements, Mathare, Nairobi

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1. Introduction and context

Harnessing the transformative potential of information and communication technologies (ICTs) is widely acknowledged as essential to the process of women's empowerment (Nangooba, 2020; Niyonzima & Bhuju, 2021; Varriale et al., 2022). ICTs are considered in this study as a broad category of technological tools used to create, preserve, manage, transmit, and receive data with the intention of meeting a variety of human needs (Rahman, 2014). This study is focused on the use of two particular ICTs: radio and mobile communications.

Batliwala (1994) views women's empowerment as the ability of women to influence external actions relating to their welfare and well-being. In this case, empowerment means that women gain control, and the capacity to make choices individually or collectively, and then transform these choices into desired outcomes. Women's empowerment is manifest in interpersonal socio-economic, cultural, and political dimensions (Singh & Vanka, 2020). The scope of empowerment varies, depending on the realities of the women in specific contexts. For instance, empowerment is dependent on whether women have access to ICTs. This implies that access is dictated by prevailing social, economic, and cultural circumstances. These realities underpinned the decision to use, in this study, the Longwe (1991) gender empowerment framework, which views women's empowerment as progressing through five stages, from the base levels of *welfare* and *access* to the optimum levels of *conscientisation*, *participation*, and *control*.

The context of this study is the Mathare informal settlements, the second largest cluster of informal settlements, after Kibera, in Kenya's capital city of Nairobi. It has a population of about 206,564 people, according to the Kenya Population and Housing Census (Kenya National Bureau of Statistics, 2019). The Mathare informal settlements are characterised by hundreds of structures, densely packed and laid out without adhering to essential construction guidelines. Many residents work in the informal business sector inside the settlements and also in the surrounding estates (UN Habitat, 2020). Unemployment, abuse of drugs and alcohol, gang culture, lack of essential services, and other forms of deprivations are rampant in the settlements, making life difficult, especially for young, vulnerable women (Kovačič & Lundine, 2014).

Research by Wamuyu (2017) in Mathare found that the settlements had poor access to digital infrastructure. A digital gender audit of Nairobi slums, including Mathare, by the World Wide Web Foundation (2015) established that only 20% of women could access the internet, compared to 57% of men. Komen and Ling (2021) found that young women in Mathare face difficulties in accessing certain ICTs, mainly because of traditional gender roles and stereotypes in Kenya—based on a patriarchal culture that does not promote gender equity. Against the background of rapid digitalisation by the Government of Kenya, this study sought to uncover the extent to which young women in the Mathare informal settlements are harnessing the power of ICTs, specifically radio and mobile communications.

2. Literature review and theoretical framework

Empowerment through radio

Radio plays an essential role in the dissemination of information. Radio communication can also be a powerful tool for amplifying the voices of women by providing them a platform to speak out about the issues that matter to them (Rimmer, 2021; Tijani-Adenle, 2022). Debates on women's empowerment through radio often focus on how the medium can be used to improve access by women to information and education, as well as their participation in public spheres (Varriale et al., 2022; Wei et al., 2021). Ekwok (2018) and Simmons (2019) argue that radio communication, in particular, is well-suited to reach out to women in rural and marginalised areas, especially those who may be illiterate or have limited access to other forms of media.

Community radio stations, in particular, have been instrumental in enhancing gender equality and women's empowerment. Niyonzima and Bhuju (2021) observe that in the rural populations of Rwanda, community radio stations have consistently raised awareness on gender issues by encouraging conversations geared towards empowering women and promoting gender equality.

Heywood (2020) has found that women-themed radio programmes empower women politically and economically. In marginalised communities and conflict-prone countries, radio is a key source of information for women. In Mali, for instance, radio programmes have enabled women to share their stories widely, thus challenging traditional gender roles and promoting gender equality (Heywood & Ivey, 2021). This suggests that radio programmes can be used to empower women, but only when they are inclusive of women's voices and varied perspectives.

Solomon (2019) has found that in South Sudan, women's participation in radio shows as hosts, guests, or callers allows them to easily share their ideas on development and to access information that has improved their involvement in development issues. Thus, radio can be a vital tool in the empowerment of women in marginalised communities, as it gives them both voice and opportunities to participate actively in development processes.

Even with all the advancements in ICTs, radio, one of the oldest ICTs, is still an essential tool for accessing information, particularly in marginalised and impoverished settings. In Kenya, community radio stations such as Realist FM in Kiambu County are embracing ICTs and providing greater opportunities to their audiences to access and participate in their radio programmes (Mwangi, 2021).

Crider (2022) and Fajula et al. (2021) caution that the use of radio for women's empowerment is not without its risks, and that careful attention must be paid to the content of programmes, the target audience, and the overall context in which they are broadcast. For instance, although the radio sector in Kenya is well advanced and thriving, there is still a lack of gender policies in many radio stations to address imbalances in organisational structures and programming outputs (Ntshangase, 2021).

Empowerment through mobile communication technologies

In this article, the term "mobile communication technologies" refers to communication platforms and services accessible through smartphones. The GSM Association's *Mobile Gender Gap Report 2021* (GSMA, 2021) shows that women in low- and middle-income countries are 7% less likely than men to own a mobile phone, and 15% are less likely to use their phones to access the internet. In Sub-Saharan Africa, women are 37% less likely to use mobile internet compared to men, indicating that the region is among those with the largest mobile gender gap globally. Rotondi et al. (2020) find that with an improvement in access to mobile phone communications, coverage, and the narrowing of digital divides, women's economic empowerment is enhanced in Sub-Saharan Africa.

The findings by Rotondi et al. (2020) are complemented by those of Hussien and Khedr (2019), who established in the context of Egypt that mobile phone ownership among women contributes to their economic advancement. Hussien and Khedr (2019) found that women who had access to mobile phones were more likely to participate in decision-making, to have more control over their finances, and to be more confident about their ability to communicate with others. This is an important finding which suggests that mobile phones can be a powerful tool for empowering women in developing countries. Although it is not clear from the findings how long-term these effects are, they are particularly relevant in the context of Egypt, where women have historically been disfranchised by patriarchal traditions and mindsets.

Though Rotondi et al. (2020) and Hussien and Khedr (2019) offer optimistic perspectives on the potential of mobile technology in the empowerment of women, their focus is only on economic empowerment. Other dimensions of women's empowerment, such as socio-cultural, interpersonal, and political dimensions, are also important considerations in order to show holistically how mobile technology can enhance women's ability to determine the direction of their lives. For instance, a study by Hussain and Amin (2018) found that although mobile technology made it possible for women in Afghanistan to improve their incomes, they could not go against the existing patriarchal power relations. Due to the likelihood of social repercussions, the Afghani women could not use the internet to acquaint themselves with information, for example on their right to divorce, or to share, privately on social media platforms, incidents of abuse. Only a few bold women rejected this control, thereby advancing their empowerment and weakening oppressive patriarchal relations (Hussain & Amin, 2018).

These studies show that that there is more to women's empowerment than economic empowerment. There is therefore a need to understand the extent to which mobile communication technologies can improve other aspects of women's lives. In Nigeria, for example, Abubakar et al. (2017) found that the use of the WhatsApp social media platform contributed to women's empowerment by expanding their freedom of expression and enabling their active engagement in economic, social, and political activities. The study provides valuable insights into the potential of mobile communications to empower women. The women could not, however, benefit from the platform fully because of the high costs of accessing the internet.

Bailur and Masiero (2017) have also established that mobile phones were instrumental in empowering women in resource-constrained areas of Kenya, Uganda, and Ghana. Bailur and Masiero (2017) further show that mobile communications can be used

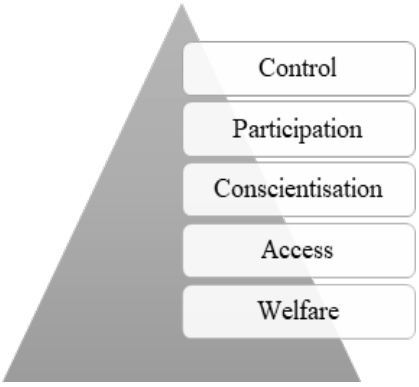
to close the gender gaps and thus improve incomes for women. This is especially important in developing countries where women often have less access than men to financial resources. With regard to the use of mobile phones by young people, Porter et al. (2020) provide accounts of a study of young people in South Africa, Malawi, and Ghana. This study found that young people primarily used mobile phones for romantic and sexual relationships, rather than for entrepreneurial and educational advancements, thus constraining trajectories on women's empowerment.

On the whole, these studies show that mobile communications are not a panacea for women's lack of empowerment; they must be used in conjunction with other interventions, such as financial literacy, to improve the gains attained. Additionally, it is important to consider the contextual factors that shape women's access to and use of mobile communications. For example, in societies that are still steeped in patriarchal traditions, women may face cultural barriers to using mobile communications, or may lack the necessary skills and knowledge. Therefore, efforts to promote women's empowerment through mobile communications need to be sensitive to constraints in the local context and must take these factors into account.

Theoretical framework

The study used Longwe's women's empowerment framework (1991). The framework conceptualises women's empowerment as progressing through five levels of measurable actions. These five levels, in ascending order (see Figure 1), are: 1) *welfare*, 2) *access*, 3) *conscientisation*, 4) *participation*, and 5) *control*. These levels are not viewed as linear but as mutually reinforcing, with every progression symbolising advancement in women's empowerment.

Figure 1: Longwe (1991) women's empowerment framework



Source: Adapted from Longwe (1991, p. 151)

Welfare is at the foundational level of this framework. This level encompasses women's empowerment in respect of factors such as an increase in income and socio-economic status. Focus at this level is on the material welfare of women in aspects such as income levels, the supply of food, and medical care. The key critique at this level is that women are regarded as passive recipients of welfare opportunities, not as active and creative creators of their material needs, hence empowerment in the actual sense does not occur.

Access is the second level in this framework. This level is focused on access as a process towards the empowerment of women. This level views gender gaps as emanating from the inequalities in access to opportunities, information, and other resources. In this regard, empowerment entails putting measures in place that would raise awareness among women of the existing gaps. Awareness is regarded as enabling women to pursue actions towards accessing an equal and fair share of the available resources within the household and in their communities.

The third level is *conscientisation*. This level involves recognition of structural forces contributing to discrimination against women. At this level, women engage in collective efforts to ensure that they are not disadvantaged. This includes ensuring that the roles of the different genders are relevant, fairness in the division of labour, and that there is no domination of one gender by the other. Empowerment at this stage also encompasses women's access to production and marketing facilities. These are complemented by legal reforms to ensure that there is equality of access to opportunities.

The next stage is *participation*, where the focus is on implementing actions arising from the conscientisation of women. At this level, women engage in collective actions aimed at challenging the widely held beliefs that have disadvantaged women. The primary concern is re-evaluating participation at all levels of decision-making, since the enhanced participation of a mobilised group is likely to facilitate the further empowerment of women. Women thus gain more power to influence decisions through mobilisation and networking. This level is crucial to the process of empowerment since there is a collective commitment to addressing structural issues that give rise to gender imbalances.

The last level in Longwe's gender empowerment framework is *control*. The control stage enables women to have control of the resources gained from their collective actions in the preceding stages. Empowerment occurs in the process of social change, thereby balancing power relations between men and women. Accordingly, neither gender dominates the other. Harnessing control enables women to influence their overall well-being, together with the well-being of their communities and society at large.

However, as previously noted, the Longwe (1991) gender empowerment framework is not a linear model. Women going through the process of empowerment may not necessarily move from one stage to the next in linear ascendancy. Rather, empowerment moves back and forth between the stages, sometimes horizontally, at other times vertically, as circumstances and experiences change. In terms of the Longwe framework, the empowerment of women is ascertained through tracking visible outcomes that are deduced through strategic data collection methods and analysis. This study was based on a qualitative approach that used in-depth interviews and focus group discussions for data collection and analysed the data through thematic content analysis. The aim of using a qualitative approach was to identify patterns and themes in the process of the empowerment of young women through personal and collective experiences, and to examine how these have changed over time as a result of their use of radio and mobile communications.

3. Research design and approach

The research adopted a qualitative design. A qualitative design was regarded as the most suitable to draw out the perceptions, experiences, and practices of young women in informal settlements on the extent to which radio and mobile communications were empowering them. As observed by Denzin and Lincoln (2011, p. 3), a qualitative design "is a situated activity that locates the observer in the world". The interviews with young women were meant to turn their perceptions, experiences, and practices into a series of representations and conversations (Jaeger, 1997). The research approach was a case study of the experiences of women in the Mathare Pioneer Youth Group.

Framework of research analysis

Longwe's (1991) framework is based on the principle that women's empowerment is a process of change that is relational, contextual, and dynamic. The framework was used to assess the experiences of young women with radio and mobile communications, and how these experiences had influenced their empowerment. The framework enabled conversations with young women about their current situation in terms of their access to resources, levels of conscientisation, participation in decision-making, and control over their lives. Based on this assessment, the study was able to identify patterns and trends in the experiences of young women and to determine the level/s at which the women were located on Longwe's framework.

In the welfare stage, the framework determined whether young women were able to access basic needs such as food, water, shelter, and healthcare. In addition, the framework analysed the ability of young women to access information, education, and economic opportunities. In the conscientisation stage, the framework assessed the awareness of young women about their rights and other issues affecting them. In the participation stage, the framework analysed evidence on the involvement of young women in decision-making and in the implementation of policies and

programmes affecting them. The final stage, control, analysed the ability of young women to exert control over their own lives, and their influence on the resources and institutions affecting them.

Sampling

The study population comprised young women from a local group known as the Mathare Pioneer Youth Group based in the Mathare informal settlements. The group accommodates vulnerable community members facing varieties of hardships in the slums. Both men and women belong to the group, although there are more young women than men. Shared challenges as a result of their vulnerable circumstances brought together members of this group to engage in activities that would improve their lives. The Mathare Pioneer Youth Group comprises 53 members, from which 36 young women were purposively selected to participate in focus group discussions. Further, 13 of the young women who participated in the focus group discussions were selected for in-depth interviews. The criterion for selection for the focus group or individual interviews was ownership of a smartphone. The average age of the young women who participated in the study was 23 years.

Data collection and analysis

This study used two methods to collect data: focus group discussions and individual interviews.

Focus groups were used to generate conversations and an understanding of issues among the participants. The discussions sought to bring out ways and means of empowerment among the young women through their use of radio and mobile communications—as well as barriers to their use of these ICTs.

Individual interviews enabled participants to express freely their opinions and experiences, devoid of bias and influence from other participants. In-depth interviews delved into the young women's use of radio and mobile communications, and barriers to their use of these ICTs for self-improvement.

The focus groups and individual interviews were based on informed consent, which was obtained from all the participants prior to data collection. The collected data was thereafter transcribed, synthesized, analysed, and interpreted in accordance to emerging themes.

Limitations of Longwe (1991) in data collection and analysis

In spite of the successes of Longwe's (1991) women's empowerment framework, it has some methodological limitations that need to be considered when analysing the process of empowerment of young women in informal settlements such as Mathare through radio and mobile communications.

First, the model does not include a practical mechanism for measuring or analysing the economic empowerment of women. This is a significant limitation, as economic empowerment is often regarded as one of the most important indicators of women's

empowerment. This study overcame this limitation by interviewing young women about their economic activities and by collecting data on women-owned businesses in the informal settlements.

In addition, the framework does not take into account the agency of women in overcoming structural disadvantages without external support. To overcome this limitation, the study took into consideration the agency of women in informal settlements, and how they may be using radio and mobile communications to empower themselves. This included looking at the content that they are sharing, as well as the participation rates and impact of radio and mobile communications initiatives. Also, the framework does not account for the diversity of experiences of women living in informal settlements.

4. Findings

Empowerment through radio

During the focus group discussions, the young women noted that they are loyal to certain radio stations. Specifically, 21 out of 36 women said that they listen to and regularly interact with Ghetto Radio 89.5 FM[1] programmes because they air content that is relevant to their lives. They said that Ghetto Radio 89.5 FM prioritises the promotion of local businesses by women entrepreneurs in informal settlements. Ghetto Radio uses Facebook and Twitter to interact with local entrepreneurs and invites them to participate in sessions and programmes on the radio station. The participants said that they rely on advice and information from the radio sessions, such as information about how to start and run successful businesses. In addition to offering a platform to women to showcase their businesses, the radio station airs advertisements for local enterprises at a discounted rate, especially for women entrepreneurs. A participant in the focus group discussions noted:

> Ghetto Radio has a show named "Hustle Mtaani", [whose focus is on promoting local businesses in the informal settlements and advising local entrepreneurs]. The chairperson of our group, Mathare Pioneer Youth group, was previously a guest on the show. She told the story of the group and of its successes on rearing chickens in Mathare. Through her story on the radio show, the demand for chicks increased substantially. As a result, we procured chicken and eggs incubators and expanded our chicken-rearing business. We are now supplying day-old chicks in Mathare and Korogocho slums. Also, we occasionally pay for advertising on Ghetto Radio because of its broad reach in Mathare and affordable advertising rates.

In addition, two of the participants in the interviews had been beneficiaries of skills training, through internships, offered by Ghetto Radio. The station provides skills

1 http://www.ghettoradio.co.ke

training programmes to build and strengthen the capacity of youth in informal settlements. One of the beneficiaries said:

> At one time, I made a video imitating Mbusi, a popular radio presenter then working at Ghetto Radio, that went viral on Twitter. The radio station got in touch and offered me [a] one-year internship programme with prospects for future employment. I was surprised because I only had a high school certificate, and most internships required at least an undergraduate degree. While attached to the radio station, I later found out that their focus was on developing skills and promoting talents, especially youth from the informal settlements. As an intern at the station, I enrolled for a journalism diploma at Rias Technical College and improved my writing and reporting skills. (Interview respondent 4)

Another beneficiary of an internship at Ghetto Radio said:

> It was always my dream to be a DJ though I never got the opportunity [to pursue it]. In 2018, Ghetto Radio posted on their Facebook page that they were offering an opportunity to nine female individuals within Mathare interested in becoming DJs. I was among the few who were selected. Through this opportunity, I am currently among well-known female DJs within Mathare and am always invited whenever Ghetto Radio hosts events within Nairobi County. The training and exposure have increased my client base and improved my standard of living. (Interview respondent 2)

The research also found that by frequently playing "Gengetone", a relatively new genre of music in the evolution of Kenyan hip hop, Ghetto Radio is in effect facilitating the empowerment of young women. Frequent airplay by Ghetto Radio of this emergent genre of music has increased the revenue streams of local artists and led to the growth of the creative economy in Mathare. In the words of one focus group participant:

> Gengetone music has created immense opportunities for women in Mathare. Some of us earn an income as music producers, musicians, DJs and some [as] "video vixens". If it were not for radio stations such as Ghetto Radio [giving] airplay to Gengetone music, probably the creative economy in Mathare would not have survived. Besides, by playing this music, the artists from Mathare can raise awareness of life in the ghetto and prompt the government to tackle issues such as rampant crime in slums and poor standards of sanitation.

Another focus group participant noted:

> We have taken the initiative as Mathare Pioneer Youth group to organise cleanups on Saturdays. This has created awareness in our locality, as people are [now] more responsible when disposing of waste. Some group members have been able to earn incomes by collecting garbage from different areas in Mathare. Without this radio station we would not have had the idea of cleaning our environment, and at the same time, creating an opportunity for generating incomes for some of our members.

Empowerment through mobile communications

The research found that mobile phones are an indispensable form of communication for young women in Mathare. By using mobile phones, young women can interact with radio programmes, use mobile financial services, and generate an income, among other engagements for their well-being.

Interaction with radio

With respect to the women's frequent use of mobile communications to interact with radio programming, one of the participants in the focus group discussions said:

> Whenever the radio station airs content relevant to us, such as measures to conserve the environment, most of us send text messages or calls to participate in the discussion.

Mobile financial services

The study found that mobile phones have made it easier for the young women in Mathare to engage in financial transactions. One advantage is that mobile money services do not require advanced ICT knowledge. As a result, the service addresses young women's needs without requiring much effort on their part. M-PESA, the mobile money service provided by Kenya's largest mobile operator Safaricom,[2] was found to be the mobile money service that is most used by the research participants. And among the M-PESA services, the Lipa na M-PESA ("Pay with M-PESA") offering, allowing secure cashless payments for goods and services, was found to be particularly valuable. As a participant in one of the focus groups observed:

> The Lipa na M-PESA function is a game-changer for the young women engaged in various businesses. Women entrepreneurs running grocery shops and other small businesses have fully adopted Lipa na M-PESA services. This is because it relieves us of the problem [of] having to carry money home from our business premises. Considering the high rate of

2 http://www.safaricom.co.ke/personal/mpesa

> crime in Mathare, Lipa na M-PESA ensures that money is safe [in the mobile wallet]. Also, most of the women entrepreneurs in the group have previously experienced a reversal of mobile money transactions by clients once payment is done, leading to losses for the businesses. However, with Lipa na M-PESA there is no theft through the reversal of transactions as it does not allow that function.

Lipa na M-PESA was developed by Safaricom to be a more efficient and secure way to pay for goods and services when compared to the M-PESA mobile money service. With Lipa na M-PESA, once a client initiates a transaction, only the receiving merchant can reverse that transaction. Therefore, there are no instances of theft through the reversal of transactions. Interviewee 3, a grocery retailer, observed:

> The use of mobile money has contributed immensely to saving costs and convenience in my business. Through Lipa na M-PESA, I can pay my water and electricity bills in my comfort without visiting physical offices. Also, the "Buy Goods" [feature within Lipa na M-PESA] option offered by M-PESA allows my clients to pay for their goods without incurring transaction charges. Thus, clients who prefer mobile money have the option of paying for their goods without incurring extra costs.

The Lipa na M-PESA function has two options for payment: a "pay bill" option and a "buy goods and services" option. The "buy goods and services" option allows for paying for goods and services at a participating merchant, where a buyer enters the merchant's Till Number into their M-PESA menu. With the "pay bill" option, a client incurs transaction costs, while the "buy goods and services" option does not attract any transaction charges. Interviewee 1 said:

> The mobile money platform facilitates financial transactions and is also instrumental in paying my medical insurance cover. I learned about M-TIBA, [an embedded health scheme within the mobile money payment platform], through an advertisement on Ghetto Radio. I subscribed for the service because I can pay for my medical insurance using my mobile phone every month. Besides, several hospitals within Mathare cover patients using M-TIBA, making it easier to seek medical services in the slums.

Interviewee 5, a hairdresser, observed:

> Banking services via mobile phone are convenient for conducting financial transactions from any location […]. The only exception is that you need a mobile money agent to withdraw your money. My phone allows me to operate a banking application that I can use to pay for electricity, school fees, and shopping. The transaction costs are [relatively] low, thereby affordable for most women in Mathare.

Interviewee 8, a freelance writer, said:

> As an online writer, I depend on mobile banking services to receive payments for my services. In the past, I had difficulties withdrawing money from my bank account, [but] once my bank connected my mobile wallet with my bank account, I had full access to my earnings as a freelancer […]. I can now transfer funds from my bank account to my mobile wallet, and I receive notifications from the bank about the latest financial offers.

Another participant in a focus group discussion said:

> Mobile banking services are vital in the growth of our chicken-rearing business, in that we can deposit profits from the businesses and later on invest in other ventures. We are all signatories to our group's bank account. Hence, we can keep track of our bank balances through our mobile phones. If cash withdrawals are to be made, each member must approve it. As such, there is no misuse of the group's funds. The result is that the group's savings have accumulated over the years, and we will soon be opening a bakery to serve the residents of Mathare. We believe that the convenience of mobile banking services has contributed to the financial success of Mathare Pioneer Youth group.

The study also found that some women are using the M-PESA M-Shwari[3] loan service. Some have borrowed from M-Shwari to start businesses. In the words of interviewee 7:

> For the past two years, I have been borrowing money via M-Shwari. I had initially borrowed money to pay bills, but with time, my limit grew, and I managed to borrow KES5,000 [approx. USD41[4]] to start a fruits business within Mathare. I borrowed money to buy a blender, a table, a few chairs, and fruits for the business. Within five weeks, I had made enough money to repay the loan and interest. As my business expanded, the loan limit also grew to KES13,000 [USD107]. However, I am usually cautious not to borrow money that I will not be in a position to repay on time. I am proud to say that M-Shwari has made it possible for me to start a business and earn an income to fend for myself and my siblings.

3 http://www.safaricom.co.ke/personal/m-pesa/m-pesa-services-tariffs/m-shwari
4 Using exchange rate on 30 November 2022.

According to interviewee 6:

> I sell second-hand clothes within Mathare to earn a living. I used to depend on money borrowed from M-Shwari to buy stock of second-hand clothing until Safaricom introduced Fuliza loans. The service allows me to restock clothes even when I do not have sufficient cash in my M-PESA account. The interest rates are low, and I only have to pay for the loan when I receive money on my M-PESA account. Fuliza has made it convenient for me to conduct my business because, at times, it might take weeks before I sell all the clothes and repay the loan. I have grown my Fuliza limit from a low of KES1,000 [approx. USD8] to KES4,300 [USD35] in the past three months.

M-Shwari is a mobile banking service offered by Safaricom that allows customers to save, lend, and borrow money using their mobile phones. If a customer needs to borrow money, they can take out an M-Shwari loan, which comes as credit in their account that they can withdraw or transfer. If a customer does not have enough money to complete an M-PESA transaction, they can use Fuliza, which is an overdraft service, to cover the shortfall. A focus group participant noted:

> Most of us have different loan applications on our mobile phones. The money borrowed from M-Shwari, Fuliza and other mobile loan applications is essential to running our businesses. It is difficult for us to borrow money from the bank because of the inability to meet bank requirements. Therefore, we rely on M-Shwari to facilitate our businesses and buy food whenever we experience financial challenges. The M-Shwari platform has taught us financial discipline because the loan limit is reduced whenever there is a late repayment of the loan. We are, therefore, encouraged to pay on time so that we can increase the limit and use the extra amount to expand our businesses. Raising capital for business is no longer an issue for the group.

Income generation

The study also found that the use of mobile communications has provided the young women with opportunities to earn an income. Interview respondent 9 indicated that she markets her hair and beauty products to clients within and beyond Mathare through social media, with some of her clients ordering products via her social media handles. Some of her clients also book appointments through text messaging and calls.

In the words of interviewee 11:

> I am a content creator and work with different brands in Kenya. I use my mobile phone to tweet about their products and services. On average, I spend KES50 [approx. 40 cents in USD] daily on data bundles which translates to KES350 [USD2.90] weekly. I get paid on average KES300 [USD2.46] daily to promote a product. On a good month, I make close to KES40,000 [USD328] for just promoting products online with my mobile phone. I can comfortably pay my siblings' school fees [and] house rent, and fend for the family.

According to Interviewee 12:

> I learned how to bake cakes by watching cooking tutorials on YouTube. I was surprised that my first attempt at making cupcakes turned out perfect. I discovered that few individuals were baking and decorating cakes within Mathare. I, therefore, saved up some money and started a business as a baker. I started with cupcakes and then proceeded to birthday and wedding cakes. We have a WhatsApp group for residents in our Flat [apartment building] that has helped me to get clients. Our Flat […] has 135 active WhatsApp members who share my cakes with potential clients. I receive countless orders for birthday cakes. There are instances whereby I no longer receive new orders until I am done delivering the ones I [have]. In future, I intend to expand my business and employ more youth in the slums.

Interviewee 10, an online shoe retailer, noted that her income level has increased by virtue of her social media platforms. In most cases, clients order shoes on her social media page.

The study found that one of the focus group participants runs a daycare centre, which makes it possible for the women in Mathare to engage in other businesses with the assurance that their children are safe. The woman created a WhatsApp group that enables her to coordinate her daycare services. Parents receive information about when to drop and pick up their children, and on the children's general welfare. She also takes into consideration that some parents own feature phones, and therefore provides the information through text messages. The efficient management of the daycare via the use of mobile communications has, according to his participant, attracted more parents and resulted in the expansion of the business. To supplement her income, this woman also sells *mandazis* (sweet fried bread), sourcing clients via word-of-mouth and her social media handles.

Barriers to empowerment through mobile phones

The study also identified several barriers to women's empowerment through use of mobile communications.

Socioeconomic barriers

The research participants indicated that their socio-economic status prevents their full utilisation of mobile communications. They indicated that they struggle to take care of their families and siblings, in addition to paying their school fees. Due to limited time and a scarcity of financial resources, they are reluctant to register for training that would make them more effective in using mobile communication technologies and in exploring the opportunities thereof. Nevertheless, many said that they are interested in learning new things. Most said that if they were offered affordable ICT training and were assured of opportunities in the ICT sector, they would be willing to dedicate time to learning more about ICT (focus group respondents).

However, some women who have been offered training opportunities in ICTs have been unable to participate. They said that this is because their priority is taking care of their families, and participating would mean losing income on the days when they are engaged in the training. A lack of transport to the training venues is also a barrier to their participation.

Cultural barriers

It was also found that cultural barriers against women have negatively impacted their uptake of mobile communications. With their socio-economic status already limited, cultural biases make the situation even worse. Interviewee 13 noted that some parents forbid their girls from owning mobile phones, as they believe that the phones will encourage them to have sexual relationships with men.

In a focus group discussion, some participants noted that some women are afraid to use mobile phones because of the belief that it will lead to the break-up of their relationships. Several women revealed that they have been accused of infidelity when their phone rings frequently (focus group respondents).

5. Analysis in terms of the Longwe (1991) theoretical framework

Empowerment through radio

Young women in the Mathare informal settlements can be said to have initiated the *welfare* stage in the Longwe (1991) framework through their engagements with Ghetto Radio, whose content has contributed to improvement of their socioeconomic status. The young women have also progressed to the next level, *access*, where they gain access to opportunities for skills development, career development, and support for their businesses—through the various programmes and initiatives offered by Ghetto Radio.

The third level, *conscientisation*, is being realised by some women, as they are slowly getting into jobs and careers that were previously dominated by men. This is evidence that the young women are progressing from merely having knowledge of existing inequalities to taking concrete steps to address these inequalities.

The final levels in the Longwe (1991) gender empowerment framework, *participation* and *control*, are being realised by some of the young women through their participation in initiatives as equals to men. Such young women are not merely passive recipients of development initiatives, but are actively shaping the conversations and content towards personal and social transformation.

Empowerment through mobile communications

The use of mobile communications has enabled many of the young women to progress from the level of *welfare* up to the *control* stage in Longwe's (1991) women's empowerment framework.

To start with, many of the young women initiated the *welfare* stage through their engagements with mobile money services. These financial services have provided them with a convenient way to access money and manage their finances, as well as with opportunities to start and grow their own businesses. The welfare stage has since progressed into the *access* stage for many of the women, who are now able to access financial services and healthcare, among other services, through mobile communications. Many of the young women have also advanced to the *conscientisation* stage through mobile communications, as they are now more aware of their financial options and are able to make more informed choices about how to manage their finances.

The *participation* stage has also been realised by many of the women, wherein they have amplified their voices on how their money and other resources are being used. The ability of many of the young women to generate income through mobile phones suggests that these women have even risen to the *control* stage of Longwe's (1991) women's empowerment framework, wherein they are not content with merely listening and speaking, and are controlling their personal and collective resources.

6. Conclusions

The study established that many young women in the Mathare informal settlements have been able to use ICTs, specifically radio and mobile communications, as important elements of their journey towards personal and collective empowerment—as viewed through the prism of Longwe's (1991) women's empowerment framework. It was found that ICTs have provided the young women with relevant information to access resources, opportunities to generate income, and opportunities to improve their general well-being.

The study provides important insights into how ICTs can be used to empower women, particularly in developing countries. It also highlights the potential of radio and mobile communications to reach and engage women in the Mathare informal settlements, for whom access to communications and other resources is often impeded by socioeconomic and cultural barriers grounded in patriarchal mindsets. Finally, the study provides a contribution to the literature on women's empowerment through ICTs, and can be used to inform policy and practice in this area.

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