

Role of Communication and Information Flow In The Adoption And Use of Mobile Technology By Women Entrepreneurs In Machakos County, Kenya

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ABSTRACT:- The purpose of this study was to investigate the role of communication and information flow in the adoption and use of mobile technology by women entrepreneurs in Machakos County, Kenya. The study adopted the use of Uses and Gratifications theory. Mixed method design was used. Systematic random sampling was used to select 350 respondents. Survey method was used to collect quantitative data. Quantitative data was analyzed using descriptive statistics and then presented in tables, figures and bar graphs. Purposive sampling was used to select 8 key informants and participants in the focus groups discussions. In-depth interviews and interview guide were used to collect qualitative data. Qualitative data was analyzed thematically and presented in narrative form. The study established that interpersonal communication is the media which is commonly used by women entrepreneurs to get information about adoption and use of mobile technology services at 45.1% followed closely by mobile service providers at 31.6%. The findings show that women entrepreneurs regularly consult family members, business colleagues and other business stakeholders. The findings further revealed that service providers were the strong campaigners of adoption and use of mobile phone technology services at 41% while county government did the least campaigns at 4%. Voice communication on the mobile phone at 52% was the service of the mobile phone technology that was mostly used by the women entrepreneurs in Machakos County. The least rated service was e-banking at 4%. On the area of empowering women entrepreneurs in Machakos County, the findings show that 23% of the women entrepreneurs have acquired new skills by using their mobile phones in business, 27% indicated that they have grown their business to higher levels even opening new branches while 31.6% attested to increasing their sales revenue. These findings show that when properly harnessed, mobile phone technology can create a very great impact in the empowerment of women entrepreneurs. The study concluded that mobile phone usage supports women entrepreneurs in their enterprises but it cannot replace face-to-face transactions which remain crucial among women entrepreneurs more particularly for meetings of group micro finance. It was recommended that communicators should come up with communication strategies which will aid in information flow in the adoption of any technology. They also need to come up with gender based theoretical frameworks to gather knowledge in the operation of enterprises which will add knowledge to the adoption process of technology and especially mobile phone technology.

Key Words: *Women empowerment, Women Entrepreneurs, communication and information flow and Mobile phone technology*

I. INTRODUCTION

The term new media encompass the emergence of computerized, digital or networked information and communication technologies in the late part of the 20th century. Most new technologies described as “New media” are digital, often having characteristics of being manipulated, networked, compressible, interactive and impartial (Herrington, 2009). This study focused on mobile technology services as it is one of the forms of new media. The spread of mobile phones across the developing world is an example of most remarkable technology introduced the past decades. This technology has been facilitated by the use of affordable handsets and prepaid cards which had enable its accessibility by hundreds of millions of first-time telephone owners to make calls and send text messages in their daily communication. However, new mobile users still live in informal cash economies, without access to financial services that others take for granted (Afrobarometer, 2013). Across the developing world, there are many people with mobile handsets than holding account in bank (Porteous, 2006).

II. MOBILE TECHNOLOGY

Mobile technology has been adopted cellular communication. Mobile code division multiple access (CDMA) is a technology that has evolved speedily over the past years. Mobile phones, particularly Smartphone support a wide range of services such as multimedia services, messaging, access to Internet, email, wireless

communications, business applications, photography and gaming. Such phones are referred to as smart phones as they offer more general computing capabilities. The technology allows the mobile population to use company resources and data. Whether your staffs are travelling to meetings, out on sales calls, working from a client-site or from anywhere on the globe, mobile phones can help them keep in touch, be productive, and make use of company resources (Chibba, 2009). Mobile phone devices can also change the way a company does business - new technologies lead to new ways of working, and new products and services that can be offered to one's customers. They can make one's team more creative, efficient and valuable clients. Mobile technology allows organizations to have an exceptional level of connectivity between vendors, employees and customers. It enables workers to download applications which enable their devices to connect with others through social media such as Facebook, Twitter and LinkedIn. The firm can also use web-based applications to facilitate direct communication with their audiences in many ways (Chibba, 2009).

III. EMPOWERMENT OF WOMEN

According to Kretschmer (2012), empowerment of women necessitates transformation of labour division as well as changes in ideologies prevalent on the roles and responsibilities of women and men. Empowerment helps achieve practical as well as strategic gender needs by enhancing self-reliance among women and acknowledging power dynamics rooted in gender class, ethnicity and age. Malhotra *et al.* (2002) in their differently view argue that "empowerment" has been used to advocate more often for certain types of intervention strategies and policies than to analyze them. This is demonstrated by a number of documents from the United Nations (UNDAW, 2001; UNCEF, 2009; UKDID, 2000), and other organizations.

For women to get empowerment economically, they have no option but to compete in a world male-dominated. The interest of this study was to assess whether cell phone is an empowering tool for women or not. Kretschmer (2012) posits that women empowerment is about the processes by which women who have been denied the ability to make strategic life choices. The ability of women to exercise choice as they incorporate three inter-related dimensions such as: resources, agency and achievements. He continues to argue that these three dimensions of choice are indivisible in determining how to measure women empowerment. For cell phones to contribute to empowerment they have to fit within the three dimensions.

Entrepreneurship is perceived as the engine of growth in Kenya because of its key role in economic development. The sector provided a lot of opportunities for employment as well as market for goods and services thus steering competition and innovation (KIPPR, 2002). Entrepreneurship comprises about 75 % of all businesses, employ 4.6 million people (30%), accounts for 87% of new jobs created and contributes 18.4 % of the GDP (GOK, 2013). The Kenyan government considers the sector as the center of industrial development and has held different development strategies (GOK, 2010). However the sector faces binding challenges that make it impractical for it to realize its full potential and deliver to the government expectations. The challenges included limited access to market, information, finances and technology and the drawback of policies which do not business environment among others (GOK, 2005).

Information Technology (IT) is identified as an enabler of other sectors, presenting enormous opportunities for entrepreneurs to improve market access (GOK, 2007). Mobile telephony has become a part of everyday life for millions of people and business organizations across worldwide. People in the business world nowadays consider the ability to communicate by mobile phones as necessary and ordinary (Donner & Escobari, 2009). The significance of mobile telecommunications services beyond basic person-to-person voice communication cannot be overemphasized. Mobile phones have become absolutely crucial for anyone doing business today due to the fact that they provide flexibility and efficiency in communication that has never existed before, and has quickly become expected in the fast moving world of modern business (Joseph, 2005). Mobile phone services have become an indispensable tool in the highly globalized, knowledge economy. Today entrepreneurs can carry out business through their mobile phone thanks to WhatsApp, face books, M-Pesa, Airtel money and others such as OLX. This is because one only needs to take a photo of the product he/she is selling post it through WhatsApp, negotiate through the use of WhatsApp, facebook or SMS, and upon agreement receive payment through M-Pesa or Airtel money. This saves the seller and the buyer operation costs which leads to improved profits and thus raising the living standards of Kenyans. This has led to their finding a place in the government of the day which is encouraging youth and women to engage in business in order to earn a living.

1.1 Problem Statement

Despite the potential of enterprises run by women to boost local economy (USAID, 2001) briefs indicate that women owned enterprises grow less rapidly and are likely to close sooner than male counterparts. According to Kalundo (2012), women's productive activities were concentrated in micro-enterprises such as hawking, retail, manufacturing in small scale and market trade periodicals. In this regard women were

concentrated in enterprises that conform to their traditional gender roles, mostly in food processing and garment making. This situation is evident in Kenya (GoK, 2009). This choice of business also defines profitability of the enterprise. Women owned enterprises generated less revenue compared to revenues generated by enterprises owned by men, which earned 74% more (Central Bureau of Statistics, 2011)

Reynolds (2004) posits that women entrepreneurs are unlikely to adopt more sophisticated technologies if they are not familiar with the basic ones as opposed to men. That's why entrepreneurship owned by men grew faster at a rate of 32% annually as compared to 16% of those owned by women. This is because of the limited number of women who have technical knowledge. Women are still observed to be lagging behind in development issues and lacks empowerment traits.

Many women businesses are still missing the huge potential benefits of using mobile technology as a part of their business enhancement (Ikiara, 2001). The different modes of communication embedded in most mobile phones including voice, SMS, radio, TV, interpersonal and group communications don't seem to improve the situation (AFFRI, 2009) Most of them are still clinging to the old fashion mode of communication that include newspapers, radio, banners and posters, and the use of traditional yet ineffective landline when it comes to interpersonal communication. This has resulted to some of them despite, being in the market for long, being overtaken if not edged out of the business by those that utilize mobile telephony because they are unable to achieve their set business goals (Svanaes, et al, 2010). This study sought to investigate the role of communication and information flow in the adoption and use of mobile technology by women entrepreneurs in Machakos County, Kenya.

2.0 Literature review

This section presents theoretical and empirical review

2.1 Empowerment Theory

According to Friedmann (1992, empowerment is a transformative process within human existence from the state of powerlessness to the state of relative control over one's overall existence by taking control over his destiny and making use of his immediate environment for a sustainable improvement in their livelihoods and better standards of living. Microfinance which has emerged as a tool of community empowerment and poverty alleviation surrounds the discussion of empowerment theory.

This theory is an alternative development approach resulting from the failures of mainstream development theories to address poverty situation in developing countries due to their emphasis on pursuit of industrialization and growth (Bhagat, 2007). This has pushed poor people in a downward spiral of resource deficit trapped in a vicious life cycle of poverty. Robert Chamber described the situation as 'the deprivation trap' and Gunnar Myrdal agreed with him and calls it the 'vicious cycle' calling for the need to address it.

Alternative development approach came from this disillusionment and hence empowerment theory which emphasizes on grassroots participation by the poor in the decision making process against centralized development policies designed and carried out by politicians and international organizations alike (Friedmann, 1992). The theory restores the abilities of the underprivileged on the basis that unless they take an active part in the development process and in control of their own destinies, sustainable development and the so-called poverty alleviation will remain a distant dream. This theory shows a direct opposition to the top-bottom approach on development. It is people-centered approach geared towards addressing the needs of the poor and how to use their initiatives, potentials and capabilities and move themselves out of the malignant deprivation of poverty as a result of being empowered.

According to Friedmann (2012), empowerment theory is an alternative development approach based on the fact that most situations entailing poverty in developing countries are associated with households where the burden is on women. He attacks the traditional basic needs approach by World Bank as 'politics variant' based on the fact that it is centered on politics rather than the process where the underprivileged identify their needs and how to satisfying those needs. He therefore advocates for a complete change in the structure of the prevailing political systems which is dominating in the spheres of power and patriarchy all aimed at eradicating the poverty conditions of the poor and disempowered with emphasis on the rural areas (Perkins et al, 1995). He praised the creativity and mobilization of women through their self-determination and collective efforts in ascertaining their position in the process of empowerment in the midst of the shrinking economic opportunities.

This study used the empowerment theory since women especially in the developing countries have been among the groups that have not been empowered (Worner et al, 2009) For women to be empowered, they have to participate in development projects which grow their income hence become capable of improving their standards of living. Starting up entrepreneurship and successfully sustaining them is one major way of impacting positively in their lives. Incorporating technology and especially mobile phone technology services is one way of boosting their businesses because they will be able to compete with other groups of entrepreneurs and especially men. Therefore, this theory reinforces and informs to the area of the study in that for women to

be empowered and break the gender gap, they need to have sustainable livelihood through adopting technology in their entrepreneurial activities.

2.2 Communication and Information Flow

According to Gerster and Zimmermann (2003) access to information is determined by connectivity, affordability and capability. Are the services available? Can potential clients afford the access? Do the potential users have the skills required for access? The users' skills has a correlation with their literacy technical abilities and language. The capacity of the users is a great concern not only when accessing information but also when transforming it into practical opportunities. Burrell & Matovu (2008) as quoted in Duncombe (2012) found out that it is the main challenge to accessing and providing information that is 'actionable'.

Duncombe & Heeks, (2002) argues that for the information to be effective its content should be relevant to the users' context, aligned with their interests and the information source should embody a certain level of trust while recipients should have enough knowledge and understanding to assimilate and assess the provided information. Duncombe (2012) adds that information cannot be viewed as a neutral entity, nor can it be viewed as static. This is because information which is either received as raw data or verbally should be assessed and applied in a way making it usable. This is the reason mobile phones are thought to be powerful tools that can provide entrepreneurial information because they can be able to enhance or amplify other existing community communication systems. Donner (2010) argues that mobile phones have the capacity to expand the users' freedom of choice by providing not only different types of information but also options such as text or voice to access the information.

Any time a new technology such as mobile phone is introduced, it enters into an established pattern of information and communication flows in a community. While it may adapt to these flows or disrupt them, its impact will in either case be closely related to them. An understanding of established information and communication flow, the livelihoods being pursued, skills and knowledge of the users and supporting infrastructure forms the context of mobile phone communication (Donner, 2007).

Humans are able to convey ideas to each other and react appropriately regardless of the communication channels due to many factors including the richness of the language they share, the common understanding of how the world works, and an implicit understanding of everyday situations (Muturi, 2012). When humans talk with humans, they are able to use implicit situational information. Context is hard to define as Day (2001) argues.

Day (2001) referred to context as any information used to characterize the situation of a person, place or object that is considered relevant to the interaction between a user and an application, including the user and the applications itself. This definition makes it easy to discuss mobile phone use in entrepreneurship and the stakeholders involved. Mobile phone use depends on the user's business, situation and the type of information being shared, skills and knowledge of the user, and government and non-government policies and regulations. So we contextualize mobile technology use in business entities.

Communication is a need that is shared by people all over the world. People communicate to share and receive information on many issues and activities affecting their daily lives (Myhr and Nordstrom, 2006). Communication comes from the Latin term 'communicare' which means to share. In the context of this study communication will be defined as sharing of information between people. Information (from the Latin word *infomare*, meaning 'to describe') is a description of events or activities. The term information is habitually used to signify knowledge as a process of being informed as well as in referring to data, facts and different types of information (Apostle and Raymond, 1997).

Shannon and Weaver (1949) define information as a measure of one's freedom of choice when one selects a message. In Shannon and Weaver's information theory, information and uncertainty are closely related and lack of information may refer to the extent of uncertainty revolving around a situation. This echoes Lester and Koehler (2007) who define information in broad terms to refer to anything that influences the state of knowledge of the receiver as described by Kaniki's (1989) definition of information as ideas, facts, imaginative works of the mind and data of value potentially useful in decision-making, question answering or problem-solving. Stoecker (2005) argues that the most important standard for information is that it is useful when acted upon, and it produces the predicted effect.

Bhagat (2007) hypothesized that information is a key component of socio-economic development whose application has not been demonstrated. They have also argued that information can be a powerful catalyst to transform society, but have been unable to show tangible linkages between information investments and the achievements of specific development goals (Menou 1993). The limited status given to information in most third world countries suggests that its potential value is not self-evident and equal. Information usefulness is dynamic and differs according to one's experiences, one's environment or within one's livelihood. Hester (2005) argues that sometimes people are not always aware of what development information entails, and opines that there is a general lack of awareness among SMEs owners. Thus, the extent to which users of information in communities which are developing are able to handle information also determine the usefulness of such

information as a resource for development. For example, the fact that mobile phone have many different features, most women in business use the basic level features to send and receive information (Muturi, 2012). Case (2007) notes that information need is recognition that existing knowledge is inadequate to satisfy the goals and needs of the people. That is, the information sources available do not provide relevant information that can be utilized to perform daily activities effectively. Hayden (1999) agrees and points out that the user perceives a need in the context of their environment. According to Hayden (1999) satisfaction occurs when the information has been analyzed and found to satisfy the original need. Non-satisfaction occurs when the information does not satisfy the original need. The only way to determine what information source is appropriate to satisfy information needs in a given community is to find out, first, about the community itself and, second, about the information the community is trying to get or use (Stoecker, 2005).

3.0 METHODOLOGY

The research was conducted in Machakos Municipality of Machakos county. Machakos County is a county of Kenya and its capital is Machakos town. Its largest town is Machakos town, Kenya’s first administrative headquarters. This study used mixed methods research approach. The study population was women entrepreneurs in Machakos municipality. Systematic sampling technique was used to select 350 women entrepreneurs. Purposive sampling technique was used to select key informants. The Key informant interviews comprised of 2 women group leaders comprising of the chairlady and the secretary, 2 officials in charge of ICT and business from the service providers (one from Safaricom and the other from Airtel), 2 officials from the Ministry of Information Communication and Technology and 2 county officials in charge of business development and licensing. Questionnaires, interview schedules and focus group discussions were used to collect the data. Qualitative data was analysed by use of descriptive statistics such as frequencies and percentages while qualitative data was analysed using thematic analysis technique.

IV. 4.0 FINDINGS OF THE STUDY

4.1. Role of Communication and Information Flow in Adoption and Use of Mobile Technology Services

Information about use of mobile phones in business

Table 1. Information about use of mobile phones in business

Channel	Frequency	Percentages
Interpersonal	150	45.1
Policy makers	12	3.6
Media	51	15.4
Service provider	105	31.6
No service	12	3.6
No answer	2	0.6
Total	332	100.0

The study established that most women entrepreneurs got the information about mobile technology services through face to face communication (45.1%) and the mobile service providers (31.6%). The media was found to have also played a role in the information dissemination but not to a great extent (15.4%). This result was not in line with the study conducted by Komunte, Rwashana, & Nabukenya (2012), who posit that, information flow by media had more influence in the adoption of the mobile technology by most women entrepreneurs in Uganda and Kenya. This might be because most of the women in Machakos County may not be using the media as the source of information in business.

The findings concur with the focus groups participants who all agreed that they get most of the information about mobile use through talking with their colleagues, friends and customers and during their informal meetings. Though they said they occasionally called or visited the service provider offices to get information on mobile technology use. One participant commended,

W7: When I want to know how to use any mobile service, I ask my friends because they explain to me slowly and in a language I understand. For example, when I wanted to know how to use internet in my phone, I went to my friend who helped me. It is easier and time saving than to go queue in the office of the service provider.

Opinion leaders play a great role in influencing information diffusion. The women entrepreneurs prefer getting information from those they know than from other media and that is why interpersonal communication has the greatest percent.

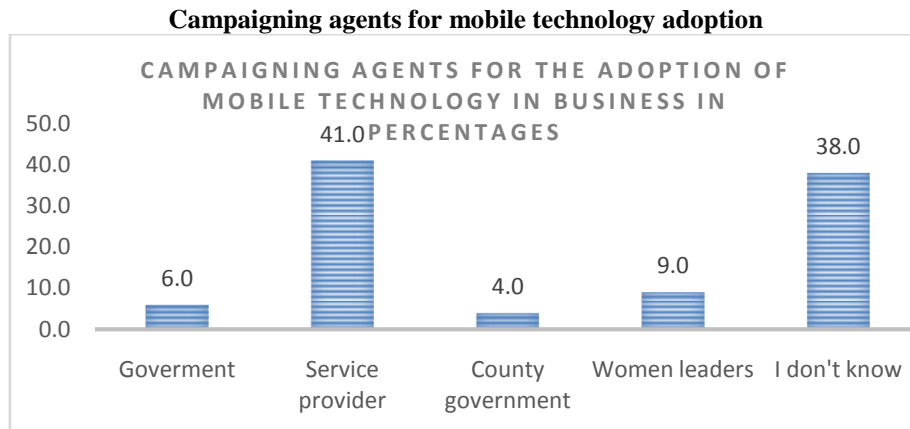


Figure 1: Agents of mobile technology campaigns

This question sought to understand who were strongly campaigning for the adoption and use of mobile technology in Machakos County. The women entrepreneurs acknowledged that service providers from mobile phone companies mostly Safaricom were the main source of information in adopting the new technology in business (41.3%) but it was wanting that most of the women (38%) were not aware about the campaigns of the use of mobile technology. The study confirms the findings of Liu & Mithika (2009) who conducted a study in Nairobi about the use of mobile banking by women and found out that the service providers since they are in business were the most people who were campaigning for their product use.

A key informant from one service provider (S2) informed the researcher that they have monthly service campaigns whereby they hire a promotion company to go around the county promoting their products and services and offer free gifts like T-shirts, caps and mobile phones to the public to encourage attendance. A key informant from the ministry of ICT concurred with the findings and said that the low percentage of the campaigns by the government is due to the fact that the ministry is relatively new and they are still implementing the new policies.

Role of various stakeholders in training women entrepreneurs on adoption of mobile technology

Table 2. Stakeholders role in training women entrepreneurs in mobile phone technology

Stakeholders	Yes		No		No answer	
	F	%	F	%	F	%
Education by County government	20	12	111	69	28	17
Clients and colleagues	168	50	74	24	56	18
Radio &TV	216	71	57	18	30	9

Investigating on the role played by some sectors in promoting the use of MTS in business in Machakos County, it was discovered that Radio and TV, clients and colleagues took the major role in promoting the use of MT (71%) & (50%) respectively. It was discouraging that the county government was not doing enough in encouraging the women to apply the use of MTS in business as the new change in business is taking place in most parts of the world. A county official key informant said this may be a result of poor attendance of trainings by the women entrepreneurs. He quipped,

C2: We are not able to facilitate much training because the county government is not able to meet the expenses of the trainings due to lack of finances. So we only hold one training yearly but still many of the entrepreneurs in the county do not attend.

Medium of information about e-business

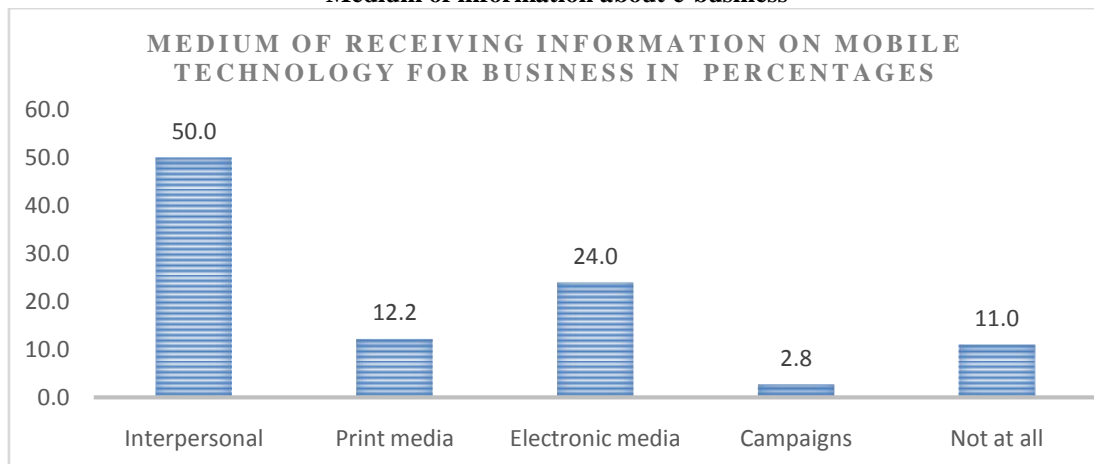


Figure 2: Medium of e-business for women entrepreneurs

It is clear from the study that the medium through which the information flows to the women entrepreneurs in Machakos County about the use of MTS in business is majorly the interpersonal communication (50%) this might be because of sharing of information by women who are in business with their colleagues. The electronic media (24%) and print media (12%) have also a role to play in the adoption of the MT in business. Accessibility of the information is vital in any business and therefore, for the development of business in Machakos, it is necessary for the county government to be involved in the business campaigns on the use of MTS. The focus groups discussion members agreed with the findings of the study and added that they get information when they have their monthly meetings. One of them quipped,

W4: I get all the information I need during our monthly chama meetings. In every meeting we share all information about our businesses. It's the best way of getting information because we contextualize it to our situations.

Since interpersonal communication seems to be the most preferred media of receiving and sharing information, the county government should train and pass relevant information to the opinion leaders such as the women group leaders, youth group leader and other informal leaders who would pass it to the women entrepreneurs to encourage them to adopt and use mobile phone technology services.

Type of mobile technology used by women entrepreneurs

Table 3. Services accessed through mobile technology

Application	Frequency	Percentages
Voice communication	178	53.6
Internet	58	17.5
SMS	70	21.1
E-banking	13	3.9
No answer	13	3.9
Total	332	100.0

To understand which service was commonly accessed by the women entrepreneurs in Machakos County over the MT, the study exposed that voice communication (53.6%), Sms (21.1%) and internet services (17.5%) were the main products the women entrepreneurs used. This means the services such as e-banking (4%) were rarely used. These findings concur with the study by Furuholt and Matatoya (2011) that investigated the levels of mobile phone use among entrepreneurs in Tanzania and found that they only used the basic level of mobile phone mainly to communicate with family and friends as well as business partners. This is corroborated by Ramburn and Van Belle (2011) who showed that even in Mauritius, which has one of the most sophisticated cellular markets in Africa, advanced mobile data services (apart from SMS) has not entered the lives of most of the subscribers. The study findings agree with the study by (Mutwiri, 2012) on the use of mobile phone by the rural farmers to get agricultural information whose findings were that people use the call and SMS services more than any other service to pass information. All participants in the focus groups discussions concurred with the findings;

Q: Which service in your phone do you use mostly?

W5: Voice calling, followed by SMS

- Q: Do you ever use the rest?
 W5: No I have never used them.
 Q: Why?
 W8: We don't understand how to use them; I don't understand the steps for registering any of them and especially OLX and Whatsapp.
 W6: The services are so many such that they are confusing, before you even learn how to use one, they introduce another one, and they don't even give us time to learn.

One participant said,

W12: I prefer calling my clients than even texting them since calling saves time and gives me immediate feedback. I don't use my phone for e-banking since I don't understand how it is done.

The stakeholders need to sensitize and train the women running enterprises on mobile phone technology services like e-banking and internet which are important for business growth. For effective adoption of MTS in business these services need more campaigns so that the women can be able to benefit from the application of MTS in business. In the USA women entrepreneurs have observed great transformation in their businesses after being sensitized and trained to adopting and using mobile technology service (OECD, 2011).

The role of electronic media on information dissemination about mobile technology adoption and use

Table 1. Electronic media role on mobile application in business

Roles	Frequency	Percentages
Advertising	222	66.9
Programmes	59	17.8
Demonstrations	12	3.6
Campaigns	15	4.5
Not at all	24	7.2
Total	332	100.0

The role played by the TV/Radio was established to be advertising (66.9%) and programme training (17.8%) in promoting the use of MTS in business application. The analysis conducted by Chew, Ilavarasan, & Levy, (2013) on economic impact of mobile phones and entrepreneurial motivation on female-owned microenterprises revealed that there still many women who are yet to integrate the MTS advanced applications in business. The study recommended that the media should be used by the service providers to encourage the women entrepreneurs to adopt the advanced functions of the mobile phone technology so that they can benefit from the global business development. Both of the key informants from the service providers (SI & S2) agreed with the findings and said that their firms have invested a lot of money in advertising for their services in both electronic and print media to keep up with competitors from other service providers. Demonstrations were rarely used by the electronic media to disseminate information at 3.6% and this paints a grim picture on the adoption process since it is an important way of training the women entrepreneurs to adopt MTS. Demonstrations should be emphasized. The women entrepreneurs would follow the steps and learn how to use the advanced mobile phone applications.

Use of mobile technology by women entrepreneurs for running business

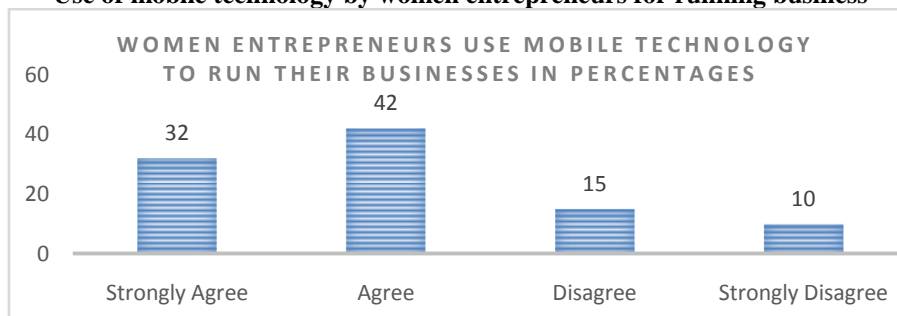


Figure 3. Use of mobile technology by women entrepreneurs

The findings of the study advanced that women entrepreneurs in Machakos County had adopted the MTS in business as shown in (32%) of the participants strongly agreed while (42%) agreed to have adopted the technology for running their businesses. This might be because of the influence of the media and the campaigns that are carried out in the area by the mobile service providers as it was observed by the researcher. Although

most of the women entrepreneurs reported that interpersonal communication had a great influence in the adoption process. Participants in the focus group discussions concurred with the findings of the study by saying that they use the mobile phone quite regularly to transact business. Two key informants who were women leaders (L1 & L2) supported the findings and said that women in their groups were using mobile technology services albeit the basic functions of the mobile phone in their businesses. The findings show that women have accepted the mobile phone as an indispensable tool for doing business.

Women empowerment through use of mobile technology in their business

Table 5. Women empowerment through use of technology

Benefits	Frequency	Percentages
Increase in income	105	31.6
Business growth	90	27.1
Development of skills	77	23.2
Better services	32	9.6
Reduction in business	16	4.8
No answer	12	3.6
Total	332	100.0

There is adoption of the MTS in business in Machakos County, although only the basic functions have been greatly adopted, its impact has been felt by the women who have integrated the technology in business. From the study 23.2% of the women entrepreneurs agreed that they have managed to acquire new business skills by using their mobile phones in business. 27.1% indicated that they have managed to grow the business to higher levels even opening new branches in other areas while 31.6% believed through MT they have managed to increase their sales revenue and 4.8% acknowledged that the use of MT in business has led to reduction in business compared to the previous trends in the county.

The World Bank (2012) in their study on information and communications for development by maximizing mobile technology suggest that the adoption of the technology in business assisted the majority of the business women in the Southern America region to gain new skills thus reducing the business failure and increasing their service delivery at 75%.

The focus groups discussion participants supported the findings by saying that MTS has helped them gain new business skills. They can now sell and buy goods through the mobile phone and even pay their utility bills through the phone. A key informant from the county office (C1) agreed with the findings and said that there is a lot of business growth in the county and increased revenue collected from the entrepreneurs.

Table 62. Communication services and empowerment of women entrepreneurs

Communication services	Strongly Agree		Agree		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%
Customers and suppliers lack information on mobile technology	4	13	81	26	175	56	12	4
Use of banners, posters and fliers has made it easy to adoption	7	24	184	58	48	15	3	1
Interpersonal communication has assisted in adoption	8	26	186	61	34	11	3	1
Newspapers and magazines helped in adoption	5	19	138	45	104	33	6	2

While investigating on the services that are available to women entrepreneurs and which had influence on the use of MTS, interpersonal communication (87%) was found to have greatly influenced the women while use of banners, posters and fliers also supported the adoption of MTS at (82%) and Newspapers and magazines at (64%). This indicated that most of the women entrepreneurs relied on the available services to learn how to apply the MTS in business.

The findings also showed that suppliers and customers had information about MTS application in business (60%). Therefore, it will be of great importance if the women were encouraged to integrate the more advanced functions of the mobile phone in their businesses so that they can benefit from the great opportunity that is available in the industry.

Table 7. Frequency of conducting campaigns and trainings for mobile technology adoption in business

Responses	F	%
Most often	26	11.1
Quite often	56	22.5
Often	20	6.3
Not often	21	7.1
Missing	209	51.0
Total	332	100.0

It was established that the frequency of conducting campaigns and trainings were at 39.9%. While 21% said it was not done often while 51% of the respondents did not respond. This might be because there is lack of proper channels of communication to pass information about the trainings. Lack of response to this question might have been because most of the participants are not aware that they should be trained in the adoption of information technology as the government is emphasizing on the use of information technology in every sector of the country and has mandated the ministry of ICT to train entrepreneurs to incorporate technology in their businesses. The findings were supported by the women group leaders, who said that campaigns and trainings to sensitize women entrepreneurs on MTS were not done regularly. The few which were done were mostly conducted by the service providers and especially Safaricom service providers to market their services. One of them said the government was using a wrong medium to pass information about the trainings so most of the women entrepreneurs did not get to about the trainings.

Table 8. Use of different media in business

Media used	Yes		No		No answer	
	F	%	F	%	F	%
Emails	73	23	205	65	34	10
Letters and memos	50	16	244	79	14	4
Newspapers and magazines	91	28	207	65	18	5
TV/Radio	68	21	232	72	19	8

On the medium the women entrepreneurs used for communication in business, the study discovered that women entrepreneurs in Machakos county were using Newspapers (28%), Emails (23%) and also Radio/TV (21%). These findings show that other media use was also below average. This is an indication that interpersonal communication was the major medium used to pass and get information. The use of modern technology seems to be very low in developing countries compared to developed countries as the literature indicated (Afrobarometer, 2014). Many women businesses are still missing the huge potential benefits of using the advanced functions of the mobile phone as part of their business enhancement (Ilavarasan & Levy, 2012). The different modes of communication embedded in most mobile phones including voice, SMS, radio, TV, internet, interpersonal and group communications don't seem to improve the situation (AFFRI, 2009). This has resulted to some of them despite, being in the market for long, being overtaken if not edged out of the business by those that utilize mobile telephony because they are unable to use all the functions of the mobile phone (Svanaes, et al, 2010). The findings concur with the information from the focus group discussions who informed the researcher that they rarely use other media to pass information. These findings show that women entrepreneurs in Machakos County use minimally other media of communication in their business and also only use the basic applications of the mobile phone in their businesses. This means that they are missing out on the potential of the mobile phone in their businesses.

**Frequency of social media use in business by women entrepreneurs
FREQUENCY USE OF SOCIAL MEDIA IN PERCENTAGES**

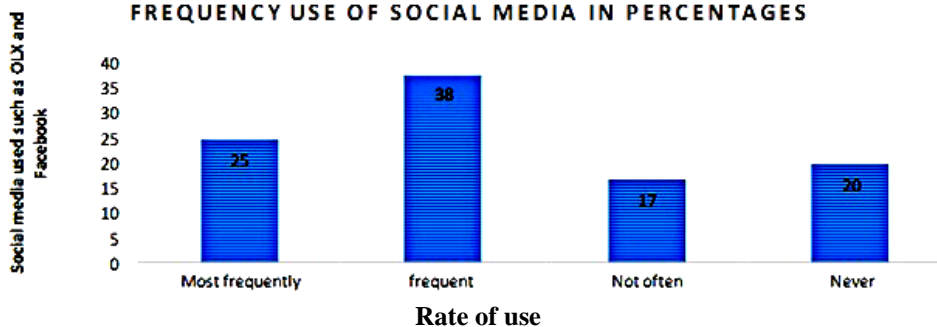


Figure 4: Frequency of social media use in business

The social media is one of the current platforms for conducting business which the women entrepreneurs need to take advantage of. But the study exposed that this platform still needs to be exploited, since only 25% of the participants confirmed to be using the medium most frequently with 38% using it

frequently. 17% of the participants established that they have never used the medium. To be able to exploit the advantages of the social media there is a need to sensitize the women entrepreneurs in Machakos county about the opportunities available in the social media and train them on how to use the different social media applications in order to get the benefits of using them in their businesses.

This study is in line with Macoy & Smith (2007) who found out that social media applications connect communities and transform communications, enhance overall well-being and open up trade. Social media has become very popular in both developed and developing countries and this presents a huge market for women entrepreneurs.

These findings were supported by a key informant from Airtel service provider, who acknowledged, *S2: Women entrepreneurs have not fully embraced social media as a service which they can use in their businesses to sell and buy products. They perceive social media as one for leisure but not for business. Only a few inquire from us about the social media service.*

Women need to be sensitized to exploit social media service in their phones since many people have subscribed to social media. Hence they can get a wide market area for their goods and services through the social media which would increase their profits leading to business growth and hence empowerment.

Services provided by social media to women entrepreneurs

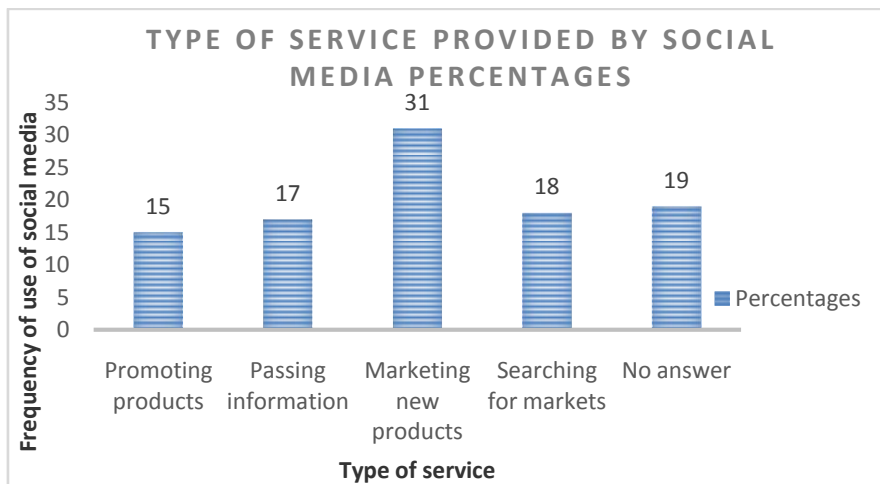


Figure 5. Services provided by social media

The social media has offered opportunities to many business people in the world. The services provided by the social media which the women have made use of are; marketing of new products (31%) which is the service mostly used by the women entrepreneurs. Other services had percentages below 20% which were promoting products (15%), passing information (17%) and searching for new markets (18%). From the study it is true that the women entrepreneurs in Machakos County have not fully exploited the use of the social media to their advantage. The findings were in agreement with (Hafkin, 2003 and Hanz, 2009) who found out that most women entrepreneurs in Africa have not benefited from the use of social media for business. This maybe because they have not been trained on how to exploit the service for their advantage. The findings also agreed with the information given by most of the participants of the focus groups discussions who informed the researcher that they rarely used social media in their businesses. Only 4 participants in the focus group discussions out of the 12 use social media to market their products.

4.2 Summary of Findings of the Study

5.1.4 Role of information and communication flow in adoption and use of mobile technology services

The study established that interpersonal communication is the media which is commonly used by women entrepreneurs to get information about adoption and use of mobile technology services at 45.1% followed closely by mobile service providers at 31.6%. The findings show that women entrepreneurs regularly consult family members, business colleagues and other business stakeholders. The findings are supported by the literature reviewed that women support groups influence the tools used to access information, women used close, informal support groups for their businesses, their spouses, relatives and women groups (Hinsrich and

Peters, 2002). Opinion leaders play a great role in influencing diffusion of information. The women entrepreneurs would prefer getting information from those they are familiar with or can see outcome-evidence from business colleagues and that is why interpersonal communication is the preferred medium for information dissemination. The findings revealed that service providers were the strong campaigners of adoption and use of mobile phone technology services at 41% while county government did the least campaigns at 4%. The study confirms the findings of Liu & Mithika (2009) who conducted a study in Nairobi about the use of mobile phone for banking by women and found that service providers were the main campaigners since they are in business and needed to market their products and keep up with their competitors.

When investigating the role of various stakeholders in training women entrepreneurs on adoption and use of mobile phone technology services, the study found that Radio and TV, and clients and colleagues, took the major role at 71% and 50% respectively. The county government was not doing enough in encouraging the women to apply the use of mobile technology services as the world is becoming a global village due to the use of technology. The county government should be the champion of adoption of mobile technology since they are mandated by the national government to bring technological change in the county. They should allocate resources in their county budgets to train and sensitize entrepreneurs on technologies which can enhance their businesses. The study found that voice communication on the mobile phone at 52% was the service of the mobile phone technology that was mostly used by the women entrepreneurs in Machakos County. The least rated service was e-banking at 4%. These findings agree with Mulwa (2012) study on financial e-banking inclusion of the poor whose findings were that the poor and unbanked do not use their mobile phones for banking. This might be caused by lack of knowledge on how to use the mobile phone for banking the profits they get from their businesses. On the role played by TV/Radio, advertising of mobile technology services and programme training were the main activities used to promote adoption and use of mobile technology service at 66.9% and 17.8% respectively. The service providers and the policy makers should use the media to promote the integration of technology and entrepreneurship and to encourage women entrepreneurs to adopt and use mobile technology. The findings of the study showed that 74% of the women entrepreneurs in Machakos County were using the basic mobile technology services in their businesses. This might be because of strong interpersonal communication which might have led to strong diffusion of information about mobile phone services among the entrepreneurs. If opinion leaders could be trained and encouraged on how to use mobile technology service, they can pass the same to the women entrepreneurs who would adopt and use it for their entrepreneurial activities. On the area of empowering women entrepreneurs in Machakos County, the findings show that 23% of the women entrepreneurs have acquired new skills by using their mobile phones in business, 27% indicated that they have grown their business to higher levels even opening new branches while 31.6% attested to increasing their sales revenue. These findings show that when properly harnessed, mobile phone technology can create a very great impact in the empowerment of women entrepreneurs.

On the frequency of campaigns for adoption and use of mobile phone technology services in Machakos County, only 33.6% of the participants accepted that campaigns have been going on to sensitize them on how to use mobile technology services in their businesses. 51% of the participants did not respond to the question which means that majority of the women entrepreneurs were not aware that they should be trained on adoption and use of technology as the government is emphasizing on the use of technology in every sector. The county government and the service providers needs to use all available media to create awareness of mobile phone technology trainings in order to make sure that the women entrepreneurs turn up in large numbers so that they get informed uniformly and be on the same platform in business technology.

The study found that women entrepreneurs also used other media in their businesses but in small percentages. Newspapers were commonly used at 28%, followed by emails at 23% while Radio/TV were third at 21%. These percentages show that apart from mobile phone technology services, other media were also used though minimally. This would mean that they have adopted and use mobile technology services fully for all their business transactions but this is not the case as the study established that women entrepreneurs in Machakos county have not fully adopted the advanced mobile technology services. The frequency of use of social media for business transactions shows a below average picture on its adoption and use with only 25% of the women entrepreneurs agreeing use social media most frequently, 38% being frequent users while 20% established that they have never used social media. To be able to take advantage of social media and the benefits it can provide, there is need for training the women entrepreneurs so that they may utilize it more optimally given the large number of people who have subscribed to it. 31% of those who had subscribed to social media use it for marketing of new products, 18% to search for new markets and 17% for passing information. These percentages are way below average while it is appreciated world over that social media has a lot of uses for businesses and when properly integrated into business can lead to business growth. This means women entrepreneurs do not know the benefits social media can bring to their businesses. When harnessed properly, social media can lead to reaching out to new markets, advertising products and getting the best prices for their commodities. This is supported by the study done in Chennai, India where a network of women groups

established since 2001 to expand opportunities to market products using the cell phone for communication reported a positive correlation (Joseph, 2001).

V. CONCLUSIONS

The researcher therefore concludes that mobile phone usage supports women entrepreneurs in their enterprises but it cannot replace face-to-face transactions which remain crucial among women entrepreneurs more particularly for meetings of group micro finance. Face-to-face can be done through advanced internet functions like skype but since women entrepreneurs had not adopted the advanced mobile phone applications, they didn't have the capability to use it so they depended on physical meetings

VI. RECOMMENDATIONS

The current mobile phone usage in business transactions suffers from lack of communication context; therefore, communicators need to come up with communication strategies which will aid in information flow in the adoption of any technology. They also need to come up with gender based theoretical frameworks to gather knowledge in the operation of enterprises which will add knowledge to the adoption process of technology and especially mobile phone technology. Business information provided via the mobile phone should be mediated through opinion leaders and progressive women entrepreneurs to enhance its credibility and uptake.

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