An Analysis of Factors Affecting the Use of Information and Communication Technologies among Women for Social Empowerment in Murang'a County, Kenya

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Abstract: *Information and communication technologies (ICTs) have been increasingly promoted as a key tool for promoting social and economic development. ICTs have played a major role in poverty eradication and the empowerment of historically disadvantaged groups such as women and the youth. ICT is a significant area of concern for women empowerment and the growth of developing countries like Kenya. This paper focuses on investigating the factors affecting the use of Information and communication technologies among women, and to assess the impact of the use of Information and communication technologies for social empowerment among women in Murang'a County. A descriptive research design was used in this study which involved 140 respondents selected through stratified random sampling. The study was conducted on women above 18 years of age, and data was collected through self-administered questionnaires. The study analyzed factors affecting the use of ICTs among women for social empowerment including: women ignorance of the existence of suitable information Communication Technologies, High level of illiteracy, Language barriers, inadequate time to use ICTs, and the high cost of ICTs. The study identified that these factors affect social empowerment of women in Murang'a County. The study recommends that women should be trained on effective use of ICTs and should be provided with resources such as funding and infrastructures.*

Keywords: Social empowerment, Information and communication technology, Women, Murang'a County

1. Introduction

In Kenya, women constitute more than half of the population (KNBS, 2009). Murang'a County had an estimated population of 936,228 persons in 2009 comprising of 451,751(49%) males and 484,477(51%) females (KNBS, 2009). In most developing countries, women represent far less than 50% of a nation's intellectual capital, skilled labor pool, and economic contribution (Leahy *et al.*, 2002). According to the Murang'a County Integrated Development Plan (CIDP) (2013-2018), the county literacy stands at 70.1% with 73.9% male and 66.7% female. Women constitute the largest population with low literacy level because many women drop out of school due to early pregnancies or early marriage. This means that women empowerment is critical for the development of a society as women play a very important role in the socio-economic development of any given society. This is so because of their primary career role in the family. United Nations (2006) revealed that women are more likely to be affected by poverty than men especially because of their unequal access to economic opportunities. While it is recognized that there are numerous factors responsible for the poor condition of women, this research believes that lack of access to adequate, relevant, accurate, and timely information is a major contributing factor. Research has found successful case studies from many countries that describe the use of ICT as a tool for the economic empowerment of women (Prasad & Sreedevi, 2007), participation in public life (Lennie, 2002), and enhancing women's skills and capabilities in the society (Mitchell & Gillis, 2007). When used effectively, ICT can create better opportunities for women to exchange information, gain access to online education, and to engage in e-commerce activities (Marcelle, 2002 in Sudweek & Omarego, 2010).

2. Literature Review

Information and Communication Technologies (ICTs) and Women
Information and communication technologies are basically mediums that utilize both telecommunication and computer technologies to transmit information (Kandiri, 2010). ICT is also said to encompass technological innovation and convergence in information and communication leading to the development of so-called information or knowledge societies. Hence, this results to changes in social interaction, economic and business practices, political engagement, education, health, leisure, and entertainment. ICT may be viewed as the variety of ways through which instruction can be communicated (Gagne et al., 2008). Janasen (2010) adds that the term "ICT" refers to and involves the integration of more than one medium into some form of communication, including imaging and spatial modeling into a computer system. Hooper and Reinartz (2012) assert that ICT refers to the contemporary computer system that process and transmit combinations of texts, graphics, animation, audio and/or video. Newby et al. (2009) adds that the goal of ICT is to improve instruction and information delivery by increasing effectiveness and efficiency.

The use of ICTs by women has not been studied widely to provide indicators of use in Kenya. Most of the research in

Kenya focuses on broad access to ICTs and its impact on the improvement of the lives of women. Hafkin (2009), for example, found that indicators in the areas of access and usage, content, ICT related employment, technical or ICT related education, ICT policy, representation in ICT decision making and impact of ICTs on men/women are currently very limited. A recent study in Kenya indicates that women are highly optimistic, embracing ICT as a practical mechanism for achieving entry into the labor market (Amadi, 2007). However, they perceive significant structural barriers, such as public policies that fail to facilitate the development of the ICT sector, gender discrimination by employers, and training that provides them with insufficient technical skills to enable them to effectively perform in the workplace. These findings are largely confirmed by similar studies conducted in other countries (AAUW, 2000).

Relationship between ICTs and Women Empowerment

Empowerment entails acquiring knowledge, fostering self-confidence, expansion of choices, participation in decision making, and improving access to and control over resources (Stromquist, 2008). ICT, when used effectively, can achieve all of these goals. Access to resources is indeed the key, with knowledge being the most important resource of all. ICT is able to improve women's standing both economically, in terms of access to greater opportunities and higher wages, and socially in terms of networking and social interaction. For instance, women are able to increase their knowledge and connections with others, gain status within their social sphere, and increase their earning power. Also, they will eventually have more capacity to contribute in and lead political movements (Meera, 2013). Abbasi (2011) asserts that ICT represents a unique "knowledge-based social Infrastructure" which can be of great help for women to evade marginalization. ICT can work as a novel opportunity to enhance women's access to information and knowledge, as women are the least educated and marginalized, especially in developing countries (Sharma, 2010).

Hafkin (2009) published a review of the "gender and ICT" theme, and provided a historical perspective of how ICT, development, and gender have emerged. Other key issues related to the subject were raised by Obijiofor (2008), such as does ICT promote interaction of women within the society and open up new channels which allow women to discuss openly issues that are considered "taboo" using classical means, especially in traditional societies?

Potential of ICT for Empowering Women

ICTs have been gathering attention as the tool to empower women from developing countries. Many people feel that ICTs can be a powerful tool for women's empowerment because of their ability to alleviate the most serious constraints that women in developing countries face, bring education where formal systems do not reach, increase productivity, and provide employment that can reduce poverty (Hafkin, 2009). Sophia (2009) argues that ICT could have less tangible but still very valuable impact on women particularly in countries that measure low on global scales of gender equity. Under the empowerment concept falls increased self-esteem, increased social status, and increased confidence. All of these steps away from isolation towards

increased opportunities and all the consequences that such moves entail (Huyer, 2012).

Consequently, the researchers agrees with Sudweeks and Armarego (2010) that information is viewed as a prerequisite for empowerment, while participation drives empowerment by encouraging people to be actively involved in the development process, contribute ideas, take the initiative to articulate needs and problems, and assert their autonomy (Obayelu & Ogunlade, 2006). Women's access to ICT-based economic and educational activities support women's contribution in work and home-based activities and help women to become more empowered. By using ICTs, women can enhance their capabilities thereby making their lives better. Research has found successful case studies from many countries that describe the use of ICT as a tool for the economic empowerment of women (Prasad & Sreedevi, 2007), participation in public life (Lennie, 2002), and enhancing women's skills and capabilities in society (Mitchell & Gillis, 2007). When used effectively, ICT can create better opportunities for women to exchange information, gain access to on-line education, and to engage in e-commerce activities (Marcelle, 2002 in Sudweek & Omarego, 2010).

Factors Affecting the Use of ICTs among Women for Social Empowerment

Women empowerment is influenced by a series of factors, including literacy and education, language, time, cost, geographical location of facilities, social and cultural norms among others constrain of women's access to information technology (ibid., p. 99). Hafkin and Taggart (2008) and Hafkin (2009) spoke of the obstacles and limitations faced by African women, which have brought the researcher to conclude that ICTs risk unintentional reinforcement of African women's discrimination and disempowerment.

Therefore, the imbalance in access to ICT is attributed to the cultural factors and socialization patterns in various communities in Kenya. Among various groups, especially in the rural areas, where over 80 percent of the population lives, men are still regarded as the owners and controllers of resources and the breadwinners. On the other hand, women are regarded as homemakers (wives, caregivers) and to be dependent on men. ICT skills in women, as compared to that of men, is generally not regarded as important by many households in many parts of rural Kenya. Such perceptions result in intensive differentials in socialization programs and different behaviors patterns for males and females at home and in learning institutions. Attributes such as independence, aggressiveness, and competitiveness are associated with and rewarded in males and those of dependence, passivity, and compliance are rewarded in females (Maria, 2010).

Women largely seek information from friends, relatives, and neighbors who are close to them. The use of media such as internet, radio, newspapers or television to seek information is insignificant, as access is hampered by lack of resources to facilitate access. If women in rural areas could get access to sufficient information in an appropriate format, they can get solutions to their problems, strengthen their ability to solve problems, make decisions and choices, and take desired actions. This can also increase their capabilities and

assets by enabling them to perform their activities more efficiently, leading to empowerment, and consequently poverty alleviation (Serah et al., 2012).

Communication Authority of Kenya (CAK) (2013) report indicates that ICT access is less available in rural areas as a result of lack of reliable infrastructure (electricity and phone lines) and the cost of setting up and maintaining the equipment. Public and community access sites (including tele-centres and cyber cafes) can be a solution, but the few evaluations done to date indicate that women do not have the same rates of access as men. Public access is sometimes located in an environment where women do not feel comfortable or in locations where women have difficulty travelling to. Cyber cafés, for example, often have a predominantly male customer base and tend not to provide a separate space for women. Further research is needed to determine what women's rates of access are at public access points, the factors affecting their access, and strategies to increase their rates of access.

Policies and regulatory frameworks, including legal protection and the right to privacy and anonymity in transactions, interaction and expression, directly affect the rights and security of users, and are of concern to women as well as men. ICT policy decisions at the national level related to women's access and use are important; however, ICT policies in most countries give inadequate attention to gender equality perspectives. There are too few efforts made to improve women's access to ICT and to increase women's participation in decision making and management (Huyer, 2008).

Research Methodology

The study on the analysis of factors affecting the use of ICTs among women for social empowerment considered a case study of Murang'a County. The study involved 140 respondents selected through stratified random sampling. The study was conducted on women above 18 years of age. A descriptive research design was used in this study. Data was collected through self-administration questionnaire. The data was analyzed using Statistical Package for Social Sciences (SPSS) software version 16. Descriptive statistics were used to analyze the factors affecting the use of ICTs among women for social empowerment. Tables and graphical charts were drawn to present the perceptions on these phenomena in terms of the women's demographic factors.

3. Results and Discussions

Research Findings

The research revealed that 28.47% women in Murang'a County had secondary school education as their highest academic qualification, while 25.55% are Primary school leavers. This is attributed to high poverty level in the area that hinders transition to tertiary learning institutions. The study findings also established that most respondents (46.72%) were unemployed. Since this group of people spends most of their time in the region, they were resourceful in this study. 15.33 % of the respondent had certificate education, 13.14 % and 10.95% had bachelors and postgraduate education respectively, and 6.57% of the respondents had no academic qualification.

Table 1: Academic Qualification

Academic Qualification						
	Primary	Secondary	Certificate	Degree	Post Graduate	None	Total
Kiharu	3	6	3	2	5	1	20
Kangema	7	7	1	2	1	2	20
Kandara	8	7	2	1	0	2	20
Kigumo	5	5	4	3	2	0	19
Mathioya	4	4	5	4	3	0	20
Maragwa	5	6	3	1	1	3	19
Gatanga	3	4	3	5	3	1	19
Total	35	39	21	18	15	9	137
%	25.55	28.47	15.33	13.14	10.95	6.57	100

Source: Researcher 2018

Factors Affecting the Use of ICT amongst Women for Social Empowerment
Occupation of Respondents

The study established that majority of women in Murang'a County were either unemployed (46.72) or self-employed (33.57%), while 33.57% were employed. This was attributed to, among other factors, lack of formal education and less job opportunities. Hence, this results in low income to majority of the women and lack of income to others. The finding also explains why majority of the women in the counties are living below poverty line. The use of ICTs varied according to demographic factors such as age, level of education, occupation, among others. Most women are not able to use ICTs for social empowerment adequately because a great percentage of them spent most of the time doing household chores or tending to their farms. These activities included cooking for their families, fetching water from the river, cleaning houses, and looking for firewood and so on.

Table 2: Occupation of Respondents

Occupation of the Respondents			
	Occupation			
Sub Counties	Employed	Self-employed	Unemployed	Total
Kiharu	4	6	10	20
Kangema	2	9	9	20
Kandara	6	6	8	20
Kigumo	4	3	12	19
Mathioya	3	8	9	20
Maragwa	5	9	5	19
Gatanga	3	5	11	19
Total	27	46	64	137
%	19.71	33.57	46.72	100

Source: Researcher 2018

Furthermore, these collectively affected the rural women's use of ICTs for empowerment towards social development, and it had a significant impact on rural women's knowledge about socio economic development and their role in poverty alleviation. At the same time, the high cost of ICTs and lack of/and inaccessibility of infrastructures among women had a significant impact on women's involvement in using ICTs for social empowerment. In addition, women's family responsibilities, lack of income due to poor occupation, lack of family property, and lack of political and social participation hindered women from accessing adequate information through ICTs.

Use of ICT

The study revealed that majority of the women in Murang'a County (77.37%) use ICTs, and only 22.63% do not use ICTs. The data implies that ICTs are used regularly by the respondents. This is as a result of increased need for information in this information society where people rely mostly on the information they receive. The women are able to use ICTS to better activities in the area of agriculture, business, health, transport, and job / career information, among others. However, the research establishes that women needs could not be satisfied by existing ICTs and services as most of them had contents not useful to the women. Most service provider was cited not to provide information in local language which most of the women better understands. The content provided was also cited not to be of help to the women. Findings indicated that women in Murang'a County favor some forms of ICTs.

Table 3: Access and Use of ICTs

Use of ICTs			
Sub County	Yes	No	Total
Kiharu	16	4	20
Kangema	14	6	20
Kandara	14	6	20
Kigumo	15	4	19
Mathioya	17	3	20
Maragwa	14	5	19
Gatanga	16	3	19
Total	106	31	137
%	77.37	22.63	100

Source: Researcher 2018

Most Commonly Used ICTs

The ICT used the most in Murang'a County was mobile phones 49.64%. This was due to the need for information communication. Mobile phones are one of the information and communication technology used by majority of the respondent. Thus, this is because of their convenience in passing and receiving information, and they are also affordable and portable. They provide several services due to convergence of technologies. During the interviews, one of the respondents emphasized that using a mobile phone she can connect to the internet, radio, television, send text messages and even voice messages, etc. 23.36% of the respondents indicated that they use Radio. The least used computing technologies were fixed telephone lines 1.4 %, computer System at 3.6%, and TV at 9.4%.

Table 4: Most Commonly Used ICTs

	Commonly used ICTs						
Sub County	ICTs Used						Total
	Mobile Phone	TV	Fixed Telephone Lines	Internet	Radio	Computer System	
Kiharu	14	0	0	1	4	1	20
Kangema	9	1	0	3	6	1	20
Kandara	10	0	0	3	7	0	20
Kigumo	9	1	1	2	4	2	19
Mathioya	9	2	0	2	3	4	20
Maragwa	6	0	0	5	5	3	19
Gatanga	11	1	1	1	3	2	19
Total	68	5	2	17	32	13	137
%	49.64	3.65	1.46	12.41	23.36	9.49	100

Source: Researcher 2018

Factors Affecting the Use of ICTs among Women

The study sought to establish the factors affecting the use of ICTs among women for social empowerment. The factors analyzed by the study included accessibility to ICTS, Cost, attitude, time, and ICT literacy levels.
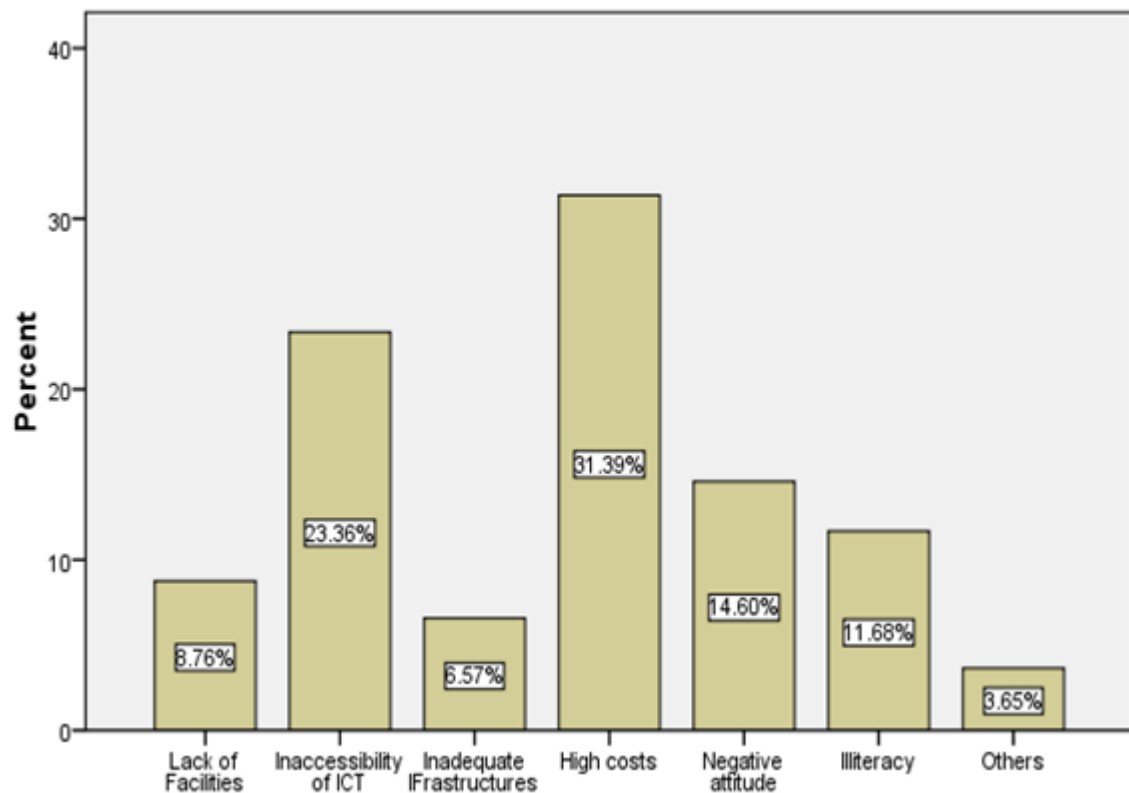
Figure 1: Factors Affecting the Use of ICTS among Women
Source: Researcher 2018

The perceived high level challenges in using ICT for social empowerment of women included the high cost of ICTs 31.39%, inaccessibility 23.36% as most women stay in rural areas, literacy issues 11.68%, and negative attitude towards ICTs 14.60%. The moderate level challenge observed was that of inadequate infrastructures 6.57%, while the low level challenges included lack of ICT tools 8.76%.

For women located at the nearby center, cost of travelling and paying for the services was a burden to them. The attitude towards ICTs also affected how women use ICTs for social empowerment which hinders them from enjoying the benefits of social empowerment. A respondent cited that they cannot use social applications on their phones since they are associated with phonography and other societal evils. Another respondent said they fear that information can be leaked to unknown persons in the society.

High level of illiteracy among women in Murang'a County was a major obstacle to information. Majority of the available information content accessed through mobile phones, which is the most commonly accessed ICT, is presented in English. However, women who do not know how to communicate in English could not benefit from such literature. The Community Radio stations which broadcast in local languages can bridge this gap if used appropriately. Language barrier was, therefore, a major hindrance to the use of ICTs.

Other factors cited were time as majority of the women were busy with their household chores that they simply lacked time to seek needed information using ICTs. Furthermore, whereas good information comes at a cost, the majority of the women were so poor that they could not afford the cost of travel to tele-centers to get needed information. The information infrastructure was unreliable and unsuitable with poor information services. Poor network infrastructures and unreliable network signals were also cited as some of the challenges in using ICTs.

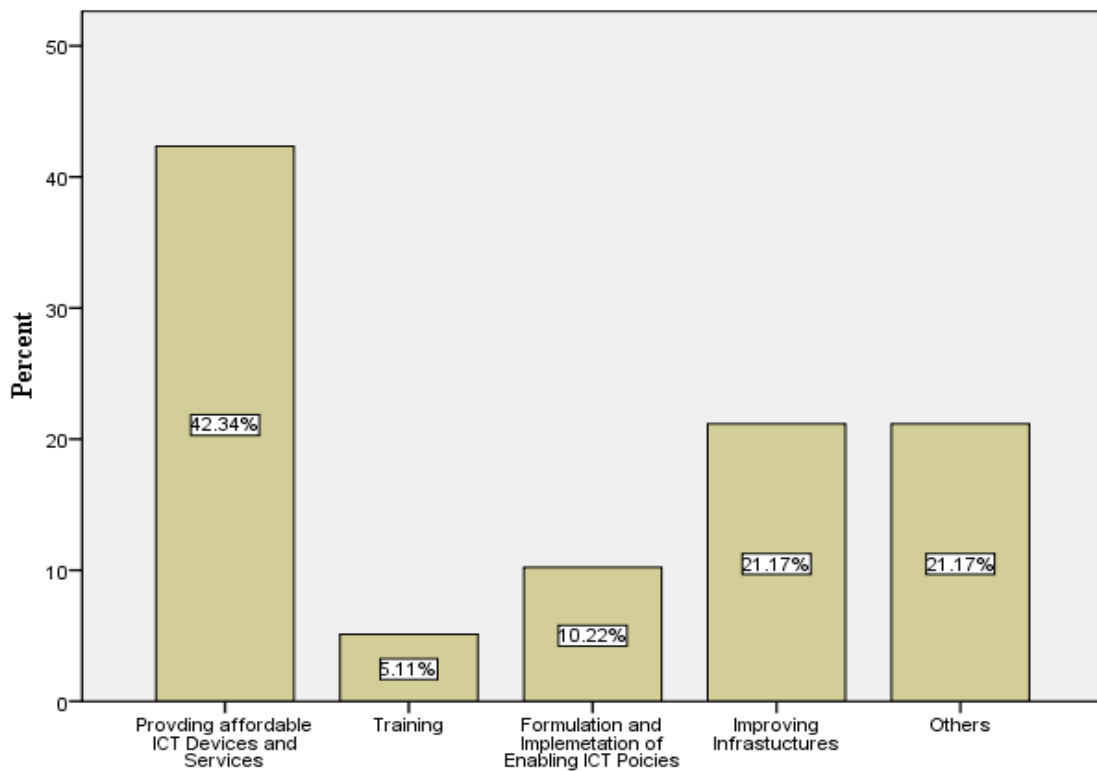**Ways to Enhance the Use of ICTs among Women for Social Empowerment**

Figure 2: Ways to Enhance the Use of ICT among Women
Source: Researcher 2018

The respondents were asked what can be done to improve the use of ICTs among women. 42.34% of the respondents indicated that the provision of affordable ICTs would improve the use of ICTs among women. 5.11% of the respondents indicated they would like to be trained on how to use ICTs, 10.22% indicated provision of necessary infrastructures such as electricity and strong network signals, 21.02% indicated that they would like the ICTs to provide information in local languages, and 21.17% raised concerns on the relevance of the contents provided through ICTs.

4. Summary of Findings

Women reported that the use of ICTs had a positive impact in their lives and, as a result, they make use of them. Majority indicated that information they received through ICTs changed their states of knowledge, values, beliefs, attitudes, behavior, and the way they make decisions. The value and impact of ICTs also made rural women to practice good farming methods to achieve food security and reduce poverty. Women use ICTs in enhancing their awareness about various issues relating to poverty alleviation. Women in all categories used ICTs to gain knowledge and improve performance in their daily activities of farming, business, education and training, employment and CBOs. This empowered them to alleviate poverty. High level of illiteracy among women in Murang'a was a major obstacle to the use of ICTs. Many of the available ICTs are either in English or Kiswahili, but women who were barely literate could not benefit from such technologies. Language barrier was, therefore, a major hindrance to the use of ICTs. Majority of the women were busy with their household chores that they simply lacked time to seek needed

information by using ICTs. Furthermore, whereas good information comes at a cost, the majority of the women were so poor that they could not afford the cost of travel to get needed information. Information from friends and relatives that women often relied on was sometimes unreliable since it came from non-specialists. The information infrastructure was unreliable and unsuitable with poor information services. Culture practices made it difficult for older women to go seeking information from younger qualified experts wherever they were found. Poor use of ICTs curtailed women's participation in socio-economic development and rendered them ineffective in the fight against poverty.

5. Conclusion

Women have information needs in the fields of agriculture, health, education, business, jobs/careers, transport /roads, security, welfare, among others. Women largely seek information from friends, relatives, and neighbors who are close to them. However, the use of ICTs such as radio, internet, mobile phone, or television can help to improve and increase access to this information. However, access to these ICT tools is hampered by lack of funds to facilitate its use, and content provided through the tools accessed is not very helpful to women. In addition, the language used in creating the content is not well understood by majority of the women. Poor ICT infrastructures also hindered the access and use of ICT for social empowerment among women. If women in Murang'a County could get access to and use ICTs, they can get solutions to their problems, strengthen their ability to solve problems, make decisions and choices, and take desired actions. This can also increase their capabilities and assets, by enabling them to perform their activities more

efficiently, leading to empowerment and consequently poverty alleviation.

This finding is absolutely not the end, but points to the question of how to provide more women with access to digital opportunities that can result in increased social empowerment. Summing up the findings, this study calls for a re-thinking about women and ICT use. This rethinking should promote increased access and the use of ICT for social empowerment among women by providing adequate infrastructure.

6. Recommendations

Based on the findings of the study, the researcher recommends that women should be encouraged to use ICTs for social empowerment. Women should be encouraged to form various networks that promote and encourage the access and use of ICTs. Such Networks can update them on various rural activities and increase their access to digital opportunities. Governments should formulate ICT policies which can provide information to women in rural areas, and a study on the role of engendered ICT policy should also be conducted.

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