



ENGENDERING TECHNOLOGIES OF COMMUNICATION: THE APPROPRIATION OF MOBILE PHONE TECHNOLOGY BY RURAL WOMEN IN FOOD PRODUCTION IN WESTERN KENYA SINCE 2007

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ABSTRACT

Agriculture plays a vital role in the economic growth of Global South countries, although the sector has been underperforming as compared to those in developed countries for decades. For an increase in production, there is a need to adopt improved agricultural technologies. Public sector programmes are adopting technology by providing agricultural extension services to overcome information related barriers. While such programmes have been generally criticized because of their limited scale, sustainability and impact, the rapid spread of mobile phone coverage in Global South countries provide a unique opportunity to aid the adoption of technology via information and communication technology (ICT)-based extension programs. The study delineates plausible mechanism (internet and mobile money transfers) through which mobile phones could aid the provision and adoption of agricultural information and extension services in Western Kenya. The purposive target population comprised of rural women, development partners and groups from social welfare and civil society in Western Kenya. Key Informant Interviews were used through personal interviews to gather primary data and Kenya National Archives provided both primary and secondary data. Institutional libraries in Kenya were also instrumental in providing secondary information for the study. Data was analyzed qualitatively using thematic and content analysis approach. Historical research design was employed in analyzing the history of the adoption and usage of mobile phone technology by rural women with regard to food production in Western Kenya. The study noted that women in rural part of Western Kenya either remain not aware of updated agricultural practices or receive second-hand information from their male farmer peers who access modern agricultural information and services with the aid of mobile phones. Subsequently, rural women who are subscribed to mobile phones gain from using this technology as their principal means of updating their knowledge about the new agricultural interventions. Based on the results of the findings, considering the global growing trend of female mobile subscribers, and appreciating the vital position of rural women in the food production sector, it is fundamental that the prospects for exploiting this technology to disseminate mobile internet services including access to mobile money transfer services amongst rural women must be studied.

I. INTRODUCTION

This article explores the extent to which rural women in Western Kenya appropriates mobile phone technology in food production. It locates the centrality of this group of women in the appropriation and utilization of mobile phone technology by employing inclusive innovations theoretical perspective. 2007 constitutes departure point as is the year mobile money transfer services was introduced in Kenya. People's lives have been transformed with regard to the mobile revolution, providing both communication and basic financial access in the form of phone-based money transfer and storage, led by the M-PESA system launched in 2007. Today, 95 % of Kenyans use telephones and 74 % are mobile money customers (Wamuyu and Maharaj, 2011). The study aims at delineating what determines the adoption of Mobile Money Transfer Services (MMTS) and Mobile Internet Services (MIS) by women involved in food production in rural areas. The crucial role of agriculture as a key determinant for the growth of economy is widely acknowledged (Byerlee, de Janvry and Sadoulet, 2009). Nevertheless the sector lags behind in Global South countries, probably because of underutilization of modern agricultural technologies, which has remained relatively low in Global South countries since the 1970s. Access to Information Communication and Technologies exposes farmers to increased agricultural production which improves their incomes, hence, increased food security. Since most of the food production systems in Western Kenya are rain-fed, adoption of telephones in weather updates would improve production output as farmers will be aware and prepare when to plant suitable crops to adapt to climate patterns. Female farmers hold a key position in food production in Kenya providing the majority (50-80%) of the total labour and time inputs required for crop production (Heyer, 1981). In spite of women's vital position in food production, they are disadvantaged in terms of access to updated agricultural information and services. The adaption of mobile phone technology can close this gap as it aids the access of information directly moving beyond the limitation of mobility and cultural barriers.

II. METHODOLOGY

The study employed a historical research design as it aimed at historically analyzing the history of mobile money transfer services and mobile internet services amongst rural women in relation to food production. The study relied heavily on archival research. Content analysis of existing information provided a qualitative analysis of appropriation of mobile phone technology by rural women in food production in Western Kenya. The archival data came from a variety of sources including government records, policy papers and reports, city development plans, government official communication notices, Institutional reports and publications (World Bank, UN-Habitat amongst others), past research and other sources of information. Oral accounts of purposively sampled rural women, civil society groups, neighbourhood, social welfare groups and development partners were also used to support the archival sources; which provided both primary and secondary data. The Kenya National

Archive in Nairobi, British Council library in Nairobi, Ifra Library in Nairobi and University Libraries in Kenya were key sources of data for the study. A pre-visit to the archives in Nairobi was made to acquaint the research with relevant background information of the anticipated data and organization. Institutional libraries in Kenya were instrumental in providing secondary data for the study. Gathered data were organized through coding, transcribing tape-recorded oral accounts and labelling. The data was analyzed using qualitative methods of analysis based on themes and content. Corroboration was then done and the findings presented descriptively through discussion, reporting and conclusions drawn.

III. RESULTS AND DISCUSSION

Agricultural production for local consumption and export in East Africa plays a significant role in national economies; making up 42% of the sub region's Gross Domestic Product. It employs nearly 83% of persons who are mostly small scale farmers. In particular, small scale farmers in Western Kenya have poor telecommunication network, limited experience in marketing and agricultural inputs (White, 1970). However, ITU (2007) asserts that, the traditional approach of providing agricultural information through extension services is strained with fewer resources. In addition, knowledge and innovation are currently considered as essential drivers of economic growth, clearly indicating that information and communication technologies (ICTs) are intensely implicated in knowledge flow and innovation. It is in the appropriation of these information and communication systems that ICTs can be used to improve the delivery of these services (White, 1970).

Nasimiyu (1985), in her study in Bungoma asserts that agricultural knowledge is a vital element in the realization of improved smallholder food production. Consequently, according to Omondi, Odede and Onjala (2018), poor communication facilities is a major challenge to women in Samia in terms of accessing market prices for their agricultural produce. They are therefore, forced to rely on intermediaries who take advantage of this ignorance.

There have been quite a few studies that explored how mobile phones impact the livelihoods of farmers (Rashid and Elder, 2009). However, research shows that mobile phone network has tremendously grown in Western Kenya with mobile telephony dominating mode of communication. Considerably, Africa realized a remarkable growth rate of 47 percent of the mobile subscriber between 2001 and 2005 (ITU, 2007) and Africans, including Kenyans, are willing to pay a higher proportion of their income in order to access a mobile phone; indicating, a considerable, unfulfilled demand for mobile phone (Broerse, 1998). Another study by Heeks (2002) showed that today almost two in three Africans own a phone. The extensive use of telephone should improve on the use of voice and SMS solution as they are more accessible. However, Munyua(2007) asserts that SMS carries only a limited amount of information requiring a basic level of literacy, hence a challenge to rural women who are involved in food production. According to oral interviews, telephones are transforming the lives of many users in the agricultural sector, and are widely recognized as a significant current and future technology platform for

Western Kenya. Mobile phones are therefore essential for development since are beneficial in terms of mobility and security to users. Mobile phones enjoy some technical advantages making them principally attractive for rural development, allowing for the transfer of data which can be used in trade and agriculture. The mobile market in Kenya is the biggest and has proved to be the fastest in terms of growth. With such growth, the mobile telephone can be used to disseminate agricultural information that could stimulate increased production by linking rural farmers to remunerative markets. This shows how the spread of the mobile phone can impact on the agricultural sector.

According to Wamuyu&Maharaj (2011), with the establishment of a rural telecentre, the mobile phone could solve the problem of internet connectivity since most rural areas lack communication network. With the increase in microfinance schemes in rural areas, M-banking facilities like M-Pesa and Airtel Money is an opportunity female farmers could use to reduce transaction costs when one has to travel all the way to urban centres just for bank services. The fast growth of mobile phones in Kenya provides a better environment for its use in various segments including agriculture. With Kenya witnessing massive developments in ICT, it would be interesting to capture the appropriation of mobile phone technology amongst rural women in improving communication and information delivery support to agricultural development for improved rural livelihoods with reference to Western Kenya. In food production sector, the idea of inclusive innovation can be realized through a partnership approach between the research organizations and public-private sectors. These can be initiated to spread agricultural innovation technology including the appropriation of mobile phone technology in rural areas to support the poor. The partnerships help the excluded groups such as vulnerable women in rural areas to both access and afford these services. In rural areas in Bungoma, the traditional patriarchal system has ensured that women are most discriminated against and treated as secondary citizens. This is often true for rural women, as the gender disparity in literacy is relatively broad in rural Kenya, as compared to the urban parts of the country; poverty being one of the major reasons for this disparity. It is thus arguable that rural women are excluded group. For instance, in Kenya's agricultural sector, various information services have been implemented at different times, either as a solo venture of the public and private sectors or as a joint partnership of the public and private sectors. Consequently, rural women in Western Kenya are significantly engaged in various food production tasks, including, land preparation, weeding, harvesting, drying of crops, grain storage, bagging and preserving food with limited access to modern technological information and services. Women either remain not aware of updated agricultural practices or receive second-hand information from their male farmer peers who access modern agricultural information and services with the aid of mobile phones. Such a situation needs to be addressed to allow women to access mobile internet services, considering their considerable role in food production.

IV. CONCLUSION

From the above discussion, it has been noted that women in rural areas in Western Kenya continue to experience low incomes from agricultural production. Levels of technology adoption are low and farmer's yields are about 50% or less of what should be possible to achieve. The lack of awareness about the available technologies and high levels of ignorance about such technologies amongst female farmers in rural areas suggest that the dissemination methods are yet to be effective in information exchange. Agricultural information dissemination in Western Kenya has depended on conservative tools that were simple in technology, less costly, and slow to change. For instance, the dissemination channels in Bungoma addressed only a few of the information and communication management strategies. The effect of the said traditional dissemination to the present-day agricultural producers (female farmers) seems to limit their ability to keep up with globalized trends in information value to their agro-business growth. Mobile phone accessibility is growing significantly even among those at the grass root level, providing a powerful channel of communication and the ability to link previously excluded rural communities to updated information. The appropriateness of mobile phone technology warrants a further study for the adoption of mobile internet services and mobile money transfer services in food production in Western Kenya due to its centrality in truck farming.

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