Journal of Adult Education (2019) vol.1 Issue 2. 15-27
https://journals.unza.zm/ Online ISSN 2664-5688

The Use of e-voucher as an input distribution system by small scale farmers in Chongwe district, Zambia: An adult education perspective

✍ **Martha Malita Banda[1]•Moses Changala[2]**

Published online: 26th November 2019

Abstract

This study sought to explore the use of e-voucher as an input distribution system by small scale farmers in Chongwe district. The objectives of the study were to: establish the extent to which small scale farmers used e-voucher as an input distribution system, identify adult education methods used in the dissemination of information on e-voucher, establish challenges faced by small scale farmers and providers of e-voucher and suggest strategies aimed at addressing challenges faced in the use of e-voucher. The study was guided by the diffusion of innovation theory. Using a descriptive survey research design to generate answers to the research questions, a sample of 30 participants was purposively selected. This comprised 26 small scale farmers, 2 programme officers from the Zambia National Farmers' Union and 2 from the Zambia National Commercial Bank. Data were collected through interview guides and focus group discussions, and analysis was through thematic content analysis. The study revealed that most small scale farmers were accessing farming inputs of their choice through the use of e-voucher. It also revealed that adult education methods used in the dissemination of information among small scale farmers on e-voucher included radio programmes, door-to-door visits by extension workers and farmer meetings. The study further showed that challenges faced by small scale farmers and providers of e-voucher included inadequate and delayed funding, slow loading and activation of e-cards and late delivery of farming inputs. Other challenges included late replacement of lost pin numbers and language barrier. Proposed strategies aimed at addressing challenges faced in the use of e-voucher were that areas should be serviced by specific focal persons; timely loading and activated of e-cards and delivery of farming inputs. The study recommended that the government should adequately fund banks; designated officers should handle e-voucher; farmer awareness campaigns should be done at farmer cooperatives level to enhance farmer participation and dissemination of information on e-voucher should be done in local languages.

Keywords: E-voucher and e-card system• Farming input distribution system• Small scale farming • Adult education•language barrier•Zambia National Farmers Union

✉ Martha Malita Banda[1]• marthabands2017@gmail.com
Moses Changala[2] • moses.changala@unza.zm

[1] Ministry of General Education in Zambia[2] University of Zambia

Introduction

Agriculture is an important source of livelihood in Zambia. However, rural small scale farmers face a number of challenges, prominent among them is the unreliable delivery of farming inputs.

To mitigate this challenge, the Zambian government, through the Ministry of Agriculture, introduced an electronic delivery system called e-voucher. This is a system where the voucher is electronically delivered to farmers through a cell phone as a short message service (SMS). This system has been used to implement the farmer input support initiative programme in the ten provinces of Zambia since 2010 (World Bank, 2010). It was anticipated that the e-voucher system would lower the cost of distributing farming inputs on the treasury and help to eliminate many input delivery costs being incurred by the government (Musika, 2018). The ultimate aim of the e-voucher initiative was to improve the farmer input delivery system in the country. Since then, the e-voucher system has been used as an input distribution system in reaching approximately 241,000 beneficiaries from thirty selected districts across all the ten provinces of Zambia.

These districts are Chongwe, Petauke, Katete, Chipata, Chadiza, Mambwe, Lundazi, Mazabuka, Monze, Choma, Kalomo, Sinazongwe, Kazungula, Sesheke, Kaoma, Mumbwa, Chibombo, Kapiri Mposhi, Mkushi, Serenje, Mpongwe, Solwezi, Zambezi, Samfya, Mansa, Mwense, Chiyengi, Kawambwa, Chikankata and Isoka (Hambulo, 2009). However, it is important that the intended beneficiaries are aware of the availability and advantages of such a programme. At this point, adult education programmes come in handy to provide knowledge and skills on the use of this technology. This education is crucial for community improvement because it is designed for the purpose of bringing about change among the people and their communities (Nafukho, Amutabi & Otunga, 2005). The overarching motivation for adult education is the human desire for self-improvement. Adults, by nature, have a desire to improve themselves in their social, intellectual, economic and political spheres. Therefore, they voluntarily opt to join learning programmes of their choice. A phenomenon Malcom Knowles describes as self-directed learning.

Although adult learners are known to be self-directed learners, some of them lack courage and confidence to take up learning (Sichula & Genis, 2019). For this reason, one of the things done in adult education is to stimulate the interest and encourage them for self-improvement. Additionally, adult learners are self-motivated and engage in organised learning for meeting specific needs including knowledge and skills (Rogers & Street, 2012). These values and principles are fundamental in helping adult learners because they act as reinforcements for participating in various adult education programmes leading to effective learning outcomes (Shikur, 1997). Gboku & Lekoto (2007) state that the overall purpose of adult education is to help individuals become knowledgeable, skilled and dedicated citizens who are willing to work individually and collectively towards achieving and maintaining an improved quality of life. It was, therefore, anticipated that small scale farmers would greatly benefit from adult education programmes in the agricultural sector in Zambia.

E-voucher, as a farmer input support programme initiative, which was implemented by the Ministry of Agriculture during the 2015/2016 farming season opened a window of opportunity for small scale farmers to easily access farming inputs and diversify their farming enterprises. However, it was observed that despite this initiative, farmers were still facing challenges in accessing farming inputs. If these challenges are not addressed, the government may continue to face delayed distribution of farming inputs which has the potential to affect the nation's food security. This study, therefore, sought to explore the use of the e-voucher system by small scale farmers as an input distribution system in Chongwe district from an adult education perspective., The objectives of this study were to: establish the extent to which small scale farmers in Chongwe district used e–voucher as an Input distribution system; identify the adult education methods used in the dissemination of information on e-voucher among small scale farmers; establish challenges faced by both small scale farmers and providers of e-voucher as an input distribution system; and

suggest strategies aimed at addressing challenges faced in the use of e-voucher as an input distribution system. Before, going further, it is important to contextualise the study within a theoretical lens that framed the study.

Theoretical framework

The study was guided by Everett Rogers' theory of diffusion of innovation which seeks to explain how, why and at what rate new ideas and technology spread. Diffusion focuses on five areas: 1. the characteristics of an innovation which may influence its adoption; 2. the decision-making process that occurs when individuals consider adopting a new idea, product or practice; 3. the characteristic of individuals that make them likely to adopt an innovation; and 4. the consequences for individuals and society of adopting an innovation; and 5. communication channels used in the adoption process (Rogers, 1962). According to Rogers (1962) diffusion refers to the process by which an innovation is communicated through certain channels over a period of time among the members of a social system. Rogers also states that innovation must be widely adopted in order to self-sustain and within the rate of adoption. He adds that there is a point at which an innovation reaches critical mass and information flows through networks. The nature of networks and the roles opinion leaders play in them determine the likelihood that the innovation will be adopted. Rogers asserts that opinion leaders exert influence on audience behaviour via their personal contact and through change agents.

Rogers (2003) views four elements as influencing the diffusion of new ideas through cultures. The first element is an innovation which he says is an idea, practice, or project that is perceived as new by an individual or another unit of adoption. The second element comprises communication channels. Rogers defines communication as a process in which participants create and share information with one another in order to reach a mutual understanding. The third element influencing the diffusion of new ideas, according to Rogers, is time which he says is very crucial to planning and decision making. The fourth element is the social system which Rogers defines as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. Rogers' theory of diffusion of innovation is considered relevant to this study because it highlights the importance of creativity and new ideas in undertakings such as agricultural programmes and activities. It also emphasises the significance of knowledge and information as well as the transmission of a novel idea to actors and stakeholders in a programme, which in this case is the use of e-voucher as a farmer input distribution programme.

The global perspective of the e-voucher system

During the Great Depression vouchers in the form of coupons were provided to American families struggling to afford groceries and by the 1940s supermarkets were issuing coupons to attract customers away from neighbouring stores. By 1965 half the households in the USA were using paper coupons. In 2008 businesses began using mobile phones to deliver electronic coupons to their customers and in 2009 coupons were used by the US government to encourage the transition to digital television (Aagaard, 2013). In the United Kingdom (UK) after World Wars, I & II coupons were used to ration the distribution of food in short supply and beyond the reach of working households. Deserving families registered at chosen shops and were provided with a ration book containing coupons which the shopkeeper would cancel in exchange for specific food items such as sugar, cheese and meat. Rationing was introduced temporarily by the UK government several times during the 20th Century, during and immediately after the war. At the start of the World War II in 1939, the government was importing 20,000,000 long tons of food per

year, including about 70% of its cheese and sugar, nearly 80% of fruits and about 70 % cereals and fats. The government also imported more than half of its meat and relied on imported feed to support its domestic meat production (Patten, 2005). This implies that the usage of coupons and its evolution into e-voucher is not a recent phenomenon.

In Haiti, the e-voucher system was used in 2012 when CARE International and the Catholic Relief Services jointly launched the Grand`anse Relief and Recovery Programme. Beneficiaries received a mobile voucher code and PIN on two scratch cards. Transactions with the vendor were done on the vendor`s basic mobile phone, with the beneficiary providing their voucher number and their confidential PIN number. The e-voucher transfer platform was a tool that made it easier, more efficient and more secure to reach participants with social protection programmes such as cash transfers. E-voucher was used successfully in Care Haiti's Kore Lavi programme to improve access of the poorest to adequate and nutritious local food. The e-voucher programme resulted in strengthened local markets by creating a stable demand for local producers and suppliers to produce diverse and nutritious food (Catholic Relief Services, 2010).

In Zimbabwe, the government through the Ministry of Agriculture, Mechanization and Irrigation Development, issued national guidelines to govern the provision of support to smallholder farmers in the form of agricultural inputs and extension for the 2011 and 2012 summer cropping season. These guidelines sought to minimise direct input distribution and eliminate the provision of free inputs to farmers. The 2011 and 2012 season marked the second season in which the e-voucher mechanism was used in Zimbabwe. The mechanism empowered farmers to choose agricultural inputs they needed for their cropping season from a selection offered under the programme. The electronic cards allowed the farmers to purchase agricultural inputs classified according to four broad categories, namely: seeds, fertilizer and lime, agrochemicals and implements and spare parts for farming equipment (AGRA, 2013) and ultimately led to a much improved farmer input delivery service.

In Malawi, 88% of the population lives in rural areas and slightly more than half of these are poor. There is a heavy dependence on market purchases of maize which has left the poor households vulnerable to the high and volatile maize prices in Malawi (source). The Agricultural Input Support Programme in Malawi, initiated in the 2005 and 2006 season, built upon a long tradition of subsidising agricultural inputs. The objective of this programme was to increase resources for poor smallholder farmers and cash crop production (World Food Summit, 1996). However, according to the World Food Summit (1996), this programme had little evidence of a long term effect on household assets or general wellbeing of the rural population. In 2013, the government of Malawi decided to pilot the use of e-voucher for farmer input subsidy programme which reached a total of 1.5 million farmers each year. This programme was implemented by the African Institute for Corporate Citizenship with the support of USAID, and NORAD. The e-voucher pilot used the *Zoona* innovative technology platform to deliver targeted e-vouchers that beneficiaries could redeem at local agro dealers (small retail shops) for the seed to improve their yields of maize and legumes (Julius, et al., 2007).

In Zambia, the challenge which the agricultural sector has been facing is to increase production. Smallholder farmers continue to experience difficulties with productivity mainly because of bottlenecks in accessing agricultural inputs. This includes the high cost of agricultural inputs which most farmers at this level may not afford (PMRC E-voucher Research Report, 2019). Mbozi (2009) adds that despite the high investment in the agriculture sector in Zambia, through the cooperating partners' including the Food and Agricultural Organisation and Non-

Governmental Organisations, the rate of increase in agricultural production did not seem to correlate with the cost of programme investment.

Advantages of using e-voucher as a farmer input support system

The e-voucher system allows small scale farmers to access farming inputs such as seeds, fertilizers and herbicides by using electronic cards. E-vouchers can improve farmer targeting because they are linked electronically to individual beneficiaries' national registration card numbers. During redemption, the procedure is that beneficiaries go to agro-dealers and present their national registration cards and vouchers. The agro-dealers enter the registration number and reference pin into the system. The agro-dealers' accounts are instantly credited and the beneficiaries are given the inputs. This ensures that only genuine and legitimate beneficiaries access the inputs (Kalinda & Sikwibele, 2006). According to Chapota, Chisanga & Kabisa (2017), generally, there has been an increase in improved seed usage in Zambia. Between 2003 and 2017, the number of farm households using improved seed increased by 27 percentage points. The highest was 2015 while the lowest was in 2003. Increased private sector participation in the seed sector has contributed to the adoption of improved seed use. Mwango (2013) established that the e-voucher system has the following benefits:

a. An e-voucher system is likely to improve the competitiveness of fertilizer distribution in rural Zambia, which is currently more underdeveloped than the seed sector. This growth in competitiveness will likely reduce the costs of fertilizer in rural areas and encourage the distribution of fertilizer types that are appropriate for Zambia's varying agro-ecological zones.
b. Targeting of beneficiaries is likely to be improved through improved monitoring of who gets the inputs and how much they get because e-voucher systems use an improved database that electronically links beneficiaries to inputs to be collected.
c. E-voucher system effectively addresses the issue of timeliness of input delivery by relying on the private sector to assume the responsibility of input procurement and distribution to rural retail outlets.
d. As much as agro-dealers still find it easy to stock seed, probably due to high competition levels among seed suppliers, they still have a problem stocking fertilizers as most of them do not have supply relationships with suppliers.
e. By transferring responsibility for input distribution from the Ministry of Agriculture and Cooperatives staff to the private sector, e-voucher is not only likely to build local business capacity and free time for ministry staff to concentrate on their core business but also increase farmers access to extension as agro-dealers.

A study conducted by Chikobala & Tembo (2018) on Gaps in the Implementation of the E-voucher System in Zambia: Implications for Strategies to Make the Model Efficient and Effective indicated that input vouchers were introduced to reduce transaction costs and that beneficiaries were given a choice regarding the type and quantity available to any input. The study also stated this allowed for the participation of the private sector in the delivery of farming input to the intended beneficiaries.

Adult education methods of disseminating information

Adult Education in all its ramifications accommodates all forms of education whether formal, non-formal and informal aspects of education whose ultimate goal is to develop the process by which

members of the community may learn to work together to identify problems and to seek out solutions to such problems (Oyebamiji, 2014). Further, Darkenwald & Merriam (1982) see adult education as a process whereby persons whose major social role is characteristic of adult status, undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values or skills.

In this case, adult education is seen as agriculture extension education whose specific focus is to enrich the farming practices through the transfer of information and innovations. Stratrats (2004) says implicitly in this education is agricultural research information which is an essential input in agricultural education, research, development and extension services. Farmers need agricultural research information to improve the harvest and their income. Dissemination of information at the right time on new farming practices has the potential of speeding up farmers' adoption of new improved practices. Additionally, farmers need information from outside the area that can bring fresh ideas and awareness of new opportunities (Sadaf, Javed & Luqman, 2006). A study by Haliso & Arayi (2014) on the New Approach to information Dissemination Methods to Female Crop Farmers in Lagos State posits that information is a contributing factor to farming success. Therefore, farmers require and need diverse information in order to support their work. Agricultural knowledge and information need to be managed like other key business inputs.

To achieve this, various adult education methods could be used in the dissemination of information on e-voucher and related aspects among small scale farmers in Zambia. These methods may include radio programme, site visits by agricultural extension officers and group discussions. Gillard (2005) defines a method as a way of organising participants for a learning programme. Typically, it involves the identification of the target participants and brings them to a place of learning specific skills designed for a particular purpose. Dissemination involves communicating relevant information which can be understood by a person and can be stored for later retrieval and use (Garforth, 1998).

Chuma (2005) suggested that methods of Extension Education, which could also be applied in the agricultural sector, can be classified as individual, group and mass methods. The first is the individual extension method. This method is used in Agriculture Extension in recognition of the fact that learning is an individual process and that the personal influence of the extension worker is an important factor in securing peoples` participation in extension activities. Although the approach is time consuming, its importance cannot be stressed enough. It is through working individually with the clientele that the extension worker learns about the people of the area, how they think, what their needs are, and how they carry on their work.

The second is the group extension method. Obibuaku (1983) defines a group as an aggregate of a small number of people in reciprocal communication. He further, suggests that group methods take into account the inclination of the individual to respond to pressures and opinions of groups in which he or she participates and to listen to the views of others before arriving at a decision about making changes in his farming operations. Group method includes teaching techniques such as demonstration, field trips, general meetings, informal or group discussions, exhibits, tours, role playing and modified conference method.

Mass media is the third method. This method is useful in reaching a wide audience at a very fast rate. It is important in stimulating farmers` interest in new ideas and practices (Adams, 1982). This method is valid when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators such as the extension agent and some subject matter specialists. The various methods which come under mass method are classification newspapers, radio, television, publications (National Open University of Nigeria, 2008).

Challenges faced in the use of the e-voucher

Use of e-voucher as a farmer input support programme may not be without challenges, seeing that it is a relatively new innovation. A study conducted by Chikobola & Tembo (2018) in Zambia indicated that the programme provided the same type of fertilizer across different agro ecological zones which led to the inefficient use of fertilizer. This entails that officers concerned failed to recognise the variability of soil fertility and climate conditions, either because of negligence or incompetence. Furthermore, the focus of the programme was mainly on maize, which restrained agricultural diversification. In addition, Musika (2016) reports that there was a challenge with the data capturing system used during the 2015-16 e-voucher pilot implementation. Musika explains that the management information system used to capture information of agro-dealers and farmer transactions missed an opportunity to collect the type of input redeemed. The inability of the system to capture such pertinent information was a big setback because it did not allow officers to record the demand for various inputs by location and related information.

Strategies aimed at addressing challenges encountered by small scale farmers

A study by Chikobola & Tembo (2018) suggested that e-voucher farmer input support programme preparations should start early so as to achieve timeliness and allow for a longer transaction window for farmers. The study further suggested that districts should receive funds early to allow for farmer registration and sensitisation. Funds are also needed for early production of e-voucher cards by banks for farmers without cards. The study also indicated that there was a need for e-voucher cards to be printed and delivered on time since they were protected by a PIN number. Additionally, Kuteya, Lukama, Chapota & Malata (2016) suggested that the government should have a contingency fund to immediately cushion the effects of an unexpected development. They further suggested that the cost savings from the traditional farmer input support programme could be used to raise the number of beneficiaries or the value of the e-voucher. This entails expanded coverage of the programme.

Methodology

The study employed a descriptive survey design. Kombo & Tromp (2013) define a descriptive survey as a method of collecting information by interviewing or administering questionnaires in

the case of this study it was by interviewing of both? This design was adopted because it is mainly used when collecting information about people's attitudes, opinions, habits or any other variety of education or social issues, which they study sought to do. The population for the study included all small scale farmers in Chongwe district, officers from the Zambia National Commercial Bank and Zambia National Farmers Union. The sample comprised thirty (30) respondents, broken down as follows: two (2) officers from Zambia National Farmers Union, two (2) from Zambia National Commercial Bank, all dealing with community programmes and twenty-six (26) small scale farmers. Purposive sampling was used to select all the respondents. The method was used to target respondents believed to be reliable for the study. Interview guides were used to collect data from the officers from Zambia National Commercial Bank and Zambia National Farmers Union while focus group discussions were used to collect data from small scale farmers. Data were analysed by content analysis and information was presented in descriptions and narrations. Verbatims which were found useful and relevant were also included for illustration. Ethical considerations were also taken into account. For example, the purpose of the study was explained to all the respondents. They were also told that participation in the study was on a voluntary basis and that they were free to terminate their participation at any point during the research process. As a way of maintaining confidentiality, respondents were not asked to reveal their identities. Informed consent of the participants and permission to record the interviews using a tape recorder were sought. They were further assured that the data to be obtained would not be disclosed to any other persons and would only be used for academic purposes.

Findings and Discussion

The findings of the study are presented under the following themes: extent to which small scale farmers use the e-voucher as an input distribution system, challenges faced by small scale farmers and providers of the e-voucher, and strategies that could be put in place to address challenges faced in using e-voucher.

Extend to which small scale farmers use e-voucher as an input distribution system

The study revealed that the majority (21) targeted small scale farmers successfully accessed farming inputs of their choice using e-voucher for a period ranging from one to ten years. They stated that e-voucher was a much improved farmer input distribution system in Chongwe district. One small scale farmer said:

> "We go to the agro-dealers' shop, swipe and then we get inputs. In addition, we just take the card to the agro dealer they swipe for us and we get fertilizer."

Officers from the Zambia National Farmers' Union also reported that there were about 17,000 small scale farmers in Chongwe district during the 2015/2016 farming season who had accessed farming inputs using the e-voucher. Furthermore, officers from the Zambia National Commercial Bank said that although it was very difficult for the government to support all small scale farmers about 60% of them had received support through e-voucher. The above finding is consistent with Chapota (2017) who reports that e-voucher allowed small scale farmers to access farming inputs such as seed, fertilizers and herbicides using electronic cards. Chapota explains that nationally about 72% of the rural households used the improved seed in 2017 compared to 2016, which marked an improvement.

The finding also authenticates Rogers' (1996) definition of diffusion which refers to the process by which an innovation is communicated through certain channels over a period of time among the members of a social system. Rogers (1996) adds that innovation must be widely adopted in order to self-sustain the programme. He asserts that within the rate of adoption, there is a point at which an innovation reaches critical mass information flows through networks. Therefore, the theory shows that small scale farmers are at a level where they can use t e-voucher, which is an innovation to more effectively access farming inputs. The study also revealed that the e-voucher system allowed small scale farmers to not only collect fertilizer and maize seed but also agricultural inputs and accessories. One small scale farmer said: "The e-voucher system allows farmers to collect medicines, vegetables and sprayers as well".

This finding is in line with Chikobola & Tembo (2018) who stated that the e-voucher system had enabled farmers to access not only seed but also feed, fingerlings and farming implements. Musika (2018) also asserts that small scale farmers accessed farming inputs of the choice and gave them a wide selection of inputs.

Adult education methods used in the dissemination of information on the e-voucher

The study showed that a number of adult education methods were used to disseminate information on the use of e-voucher as an input distribution system. These included radio programmes, farmer meetings with agricultural extension officers and door-to-door visits by the officers.

One small scale farmer reported:

> ''Some of the measures that where put in place to disseminate information on e-voucher was radio programmes. They also arranged meetings with various cooperatives in all the parts of our communities and, in particular, in areas where these programmes where being implemented. The camp extension officers from the Ministry of Agriculture and the cooperative leaders used to conduct door-to- door sensitization of the programme to different farmers.''

Another small scale farmer mentioned:

> ''Dissemination of information on the e-voucher was mostly done by agricultural extension officers who would visit once in a while due to lack of transport and sometimes it was shared on the radio. We also had a number of meetings on the e-voucher with the National Farmers' Union the time they brought e-voucher cards.''

The above finding is in line with Rogers (1962) who stated that mass media and interpersonal channels were more effective in creating knowledge and changing attitudes towards new innovation. This entails that communication is at the centre of transmission of any innovation. Therefore, for that innovation to yield positive results the intended recipients and beneficiaries should be receptive of it. Officers from the Zambia National Commercial Bank and the Zambia National Farmers' Union stated that small scale farmers were sensitized on financial literacy to help them have information on the money they should pay for their e-voucher cards and also how they could use the money realised from their produce. One officer from the bank said:

> "Radio programmes, farmer meetings, camp extension officers meetings and door-to-door meetings are used in the dissemination of information on the e-voucher with emphasis on aspects such as financial planning and prudent use of resources."

Rogers (1962) states that communication channels are the means by which messages get from one individual to another and mass media channels are more effective in creating knowledge of innovation, whereas interpersonal channels are more effective in forming and changing attitudes towards the new the new idea. Rogers's points out that in order for opinion leaders to spread messages about innovation, they must have interpersonal networks with their followers and one indicator of such accessibility is social participation. Haliso & Arayi (2014) hold that since information is a contributing factor to farming success, farmers require and need diverse information in order to support their work and should be managed like other key business input.

Challenges faced by small scale farmers and providers of the e-voucher

The study revealed that small scale farmers faced challenges of late funding by the government even after they had paid the mandatory four hundred kwacha (K400.00) towards their e-voucher cards. The other challenge was the late delivery of inputs to farmers. One small scale farmer said:

> ''I collected inputs for the last farming season 2016 in February and with poor rains experienced, my produce was poor.''

Late activation of the cards was another challenge which hindered small scale farmer's access to farming inputs. The study further revealed that due to late activation of e-voucher cards, small scale farmers were forced to make frequent visits to Zambia National Farmers Union offices to check if their cards were activated which proved to be costly.

Another challenge identified was a delay in replacing lost small scale farmers' pin numbers by the banks. One small-scale farmer lamented:

> ''My pin number was lost and I reported to the cooperative leader who asked me to travel to Lusaka to have my card replaced because it could not be done in Chongwe. It took the bank two months to replace the pin number.''

The above finding is consistent with Mbozi (2009) who asserted that lack of correlation between input and output in the agricultural sector in Zambia had mostly been attributed to late delivery of inputs to farmers. Late delivery of inputs has negative consequences for farmers as they are forced to plant late, which could result in a poor yield. The study indicated that challenges faced by officers from the Zambia National Farmers' Union and Zambia National Commercial Bank included political interference, failure by small scale farmers to follow instructions on the replacement of lost e-card pin numbers and activation of cards. An officer from the farmers' union said:

> "There are external challenges from politicians in that e-voucher has become a political programme such that their failure to fund it is blamed on the Zambia National Farmers Union. It is also difficult for leaders of co-operatives and some farmer groups to accept that the Zambia National Farmers' Union is in charge of the e-voucher."

Another officer from the farmers' union stated:

> "The whole exercise is hectic and takes most our time because concentration is only on the e-voucher and not any other programme because there are great expectation from the government, small scale farmers and other stakeholders."

An officer from the bank claimed:

> "Most small scale farmers do not understand instructions on how to use these cards because some cannot read. This poses a challenge for them. At times the cards get blocked and the process to have individual cards reactivated take rather long."

The above findings are in line with the Parliamentary Report (2016) which states that the implementation of the farmer input support programme during the 2015/2016 farming season experienced challenges such as late delivery of farming inputs, difficulties in beneficiary targeting, limited number of fertilizer suppliers participating on the programme and limitations on the variety of inputs.

Strategies that could be put in place to address challenges faced in using e-voucher

The respondents were asked to propose strategies aimed at addressing challenges faced by small scale farmers and providers in the use of e-voucher. Among the strategies proposed included: (a) funding of e-voucher activities should be done within the stipulated period, (b) verification of small scale farmers' details should be done on time. (c) reputable alternative financial institutions should be used to disburse funds in areas where there were no banks. One small scale farmer indicated that immediately small scale farmers pay K400.00, the government should load their cards so that they could easily have e-voucher cards activated. He added that farming inputs should not be delivered on the last day of the planting window as this hindered them from cultivating their fields in good time for planting.

Another farmer said:

> "The whole process of documentation of details of small scale farmers should begin as early as the mid of the year to give ample time to stakeholders to verify their details and, therefore, avoid a situation where some members cards are not activated due to the wrong submission of information."

An officer from the Zambia National Commercial bank stated:

> "Training on the use of the e-voucher as an input distribution system should be done in local languages for easy understanding as most of our small scale farmers may not have attained the kind of education to enable them to use the e-voucher as expected."

Another officer from the bank said:

> "The government should come up with genuine agro-dealers who should deal with small scale farmers who understand the use of the credit facility as well as being in a position to assist the small scale farmers on confirmation of registration."

He added:

> In areas where there are no banks, the government should engage other reputable financial organisations to manage the process of the e-voucher system.

It can be noted from the foregoing that the e-voucher programme played a significant role in farm input support and delivery among small scale farmers in Chongwe. As an initiative aimed at enhancing the agricultural sector through the provision of necessary farming inputs and information as well as the use of new technology, e-voucher was embraced by most of the intended beneficiaries. Additionally, like any new programme or initiative, is not without its shortcomings as has been highlighted in the discussion above.

Conclusion

The study concluded that most small scale farmers in Chongwe district were accessing farming inputs of their choice using e-voucher. It also concluded that apart from improving beneficiary targeting and promoting timely access to inputs by increasing private sector participation, the e-voucher programme has the potential to accelerate the diversification of the smallholder sector by allowing farmers to purchase a wide range of farming inputs. The study concluded that although e-voucher had brought about an improvement in the delivery of farming inputs, small scale farmers and providers faced a number of challenges which included late funding, late loading and activation of cards and late delivery of inputs. The studies recommended that the government, through the Ministry of Agriculture, should adequately and timely fund the e-voucher programme in order to improve its efficiency. It also recommended that banks should activate pins and replace those that are lost in good time to allow small scale farmers appropriately access farming inputs and that the Ministry of Agriculture should engage reputable financial institutions to manage e-voucher in areas where banks are not available. The study further recommended that there was a need for more effective use of adult education programmes to disseminate information on e-voucher to communities. It also recommended that the process of documenting and verification of small scale farmers' details by providers and cooperatives should be undertaken early.

References

Aagaard, P. (2007a). *Conservation Farming and Conservation Agriculture: Handbook for HOE Farmers in Agro-Ecological Regions I and IIa-Flat Culture*. Lusaka: ZNFU.

Adams, M. E. (1982). *Agricultural Extension in Developing Countries*. Harlow: Longman Group Ltd.

AGRA, 2013. *Africa Agricultural Status Report 2013. Focus on Staple Crops. Alliance for a Green Revolution in Africa* (AGRA). Nairobi, Kenya.

Catholic Relief Services (2010). Crs.org/our-work-overseas/where-we-work/Haiti.

Chapota, A., Chisanga, B. & Kabisa, M. (2017). *Zambia Agriculture Status Report*. IAPRI: Lusaka. Chikobola, M, & Tembo, G. (2018) *African Journal of Agricultural and Resource Economics* 13 N (2)193-197

Chuma, P. (2005). *University Extension Education*. ZAOU batch 240. Unit 1

Claasen, E. M. et al. (1991). *The Impact of Stabilization and Structural Adjustment Policies on Rural:* London.

Darkenwald, G. G. & Merriam, S.B. (1982*). Adult Education: Foundations of Practice*. New York: Harper and Row.

FAO. (2000). *Conservation Agriculture Scaling Up for increased Production and Productivity*, Project Document.

Garforth, C. (1998). *Dissemination Pathway for RNR research*. Social- economic methodologies. Best Practice Guidelines. Chatham, UK: Natural Resources Institute.

Gboku, M. & Lekoko, R. N. (2007). Developing Programmes for Adult Learners in Africa. Cape Town: Pearson Education.

Gillard. (2015). *Oxford Advanced Learners Dictionary*. Cambridge: Cambridge University Press.

Hambulo, N. (2009). *There Agriculture Sector Can Help Zambia More Towards Sustainable Economic Development Economic Association of Zambia.* Lusaka.

Haliso, Y, & Arayi, T.B. (2014) *New Approval of Information Dissemination Methods to female Crop farmers in Lagos state.*

Julius, H., Kanchule, M., Kalinda, T., Chilongo, T., Simfukwe, M. & Tostao. (2007). *Input Voucher Study in Malawi, Mozambique and Zambia:* A final synthesis report.

Kalinda, H., & Sikwibele, H. (2006). "*Zambia Relief Seed Mechanism and Seed Voucher Study"* FNPAN.

Kombo, D. K., & Tromp, D. L. (2006). *A Proposal and Thesis Writing –An Introduction.* Pauline's Publications in Africa.

Kuteya, A. N., Lukama, C., Chapota, A. & Malata, V. (2016). *Lessons learnt from the implementation of E-voucher pilot.* Indaba Agricultural Policy Research Institute Policy Brief No.81, IAPRI, Lusaka, Zambia.

Mbozi, G. (2009). *Report on Proposed Reforms for Fertilizer Support Programme. Ministry of Agriculture and Cooperation*. Zambia.

Mwango, K. (2013). *Assessment of the feasibility of implementing the Farmer Input Support Programme* (FISP). A research report submitted to Mulungushi University as partial fulfilment of the requirement of the master's degree.

Musika (2018). FISP Electronic Voucher Programme to Promote Diversification. Lusaka, p. 1-15.

Nafukho, F., Amutabi, M. & Otunga, R. (2005). Foundations of Adult Education. Cape Town: Pearson Education.

National Open University of Nigeria. (2008). *Extension and Methods*, Abuja: Nigeria.

Obibuaku, I. O. (1983*). Agricultural Extension as a Strategy for Agricultural Transformation.* Nigeria: University of Nigeria Press.

Oyebamiji, M, A. (2012). *The Role of Mass Media in the delivery of Adult Education for National Development*. Nigeria: Bachudo science Co.Ltd.

Patten, M. (2005). *Feeding the Nation* 978-0-600-61472-2.

Rogers, E. M. (1962).*Diffusion of Innovations*. (3rded).New York: Free Press.

Rogers, E.M (2003). Diffusion of innovations (5thEd). New York: Free Press.

Rogers, A., & Street, B. (2012). *Adult literacy and development: Stories from the field*. England and Wales: National Institute of Adult Continuing Education. Sadaf, S., Javed, A. & Luqman, M. (2006). *Preferences of Rural Women for Agricultural Information Sources*: A case study of District Faisaladad- Pakistan Journal of agriculture and social sciences 1813-2235/2006/02-3-145-14 http: //www.fspublishers.org.

Shikur, R. R. (1997). A Synergy of Theory, Practice and Strategies in Adult Learning. New Delhi: Sterling Publishers Pvt. Ltd.

Sichula, N. K., & Genis, G. (2019). Pedagogical practices in non-formal adult literacy classes in Zambia. *International review of education*, 1-25.

Stratrasts, A. M. (2004*). Battling the Knowledge Factor*: A study of farmer's information seeking learning and knowledge process with an online environment in Queensland. Unpublished PhD Thesis.

World Bank. (2010). *Impact Assessment of the fertilizer support programme: Analysis of Effectiveness and efficiency*. World Bank Sustainable Development Report. NoZ54864 ZM, World Bank, Washington D.C. USA.