

Constraints in using Mobile Money services in Uganda

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Abstract

The purpose of this study is to examine constraints hindering the successful use of mobile money (MM) services in Uganda from the perspectives of the users and agents. The researcher used a cross sectional study design and emphasis was put on quantitative research approach. In the same vein, a questionnaire survey was administered to 98 respondents whose perceptions were analyzed using descriptive statistics especially the mean score and mean ranking together with independent t-test. Findings indicated that ‘poor network connectivity’, ‘lack of electronic cash float, ‘not owning a mobile phone, ‘low electricity coverage for users’, and risk or fraud in MM transfer’, are the top five constraints in using MM services in Uganda. The study recommends that MM service providers need to critically look into these constraints as they expand and grow their businesses. More so, the study provides evidence concerning the difference in the opinions of two key players (i.e., the users and the agents) which can be used by policy makers to improve MM services in the country.

Key words: Agents, Constraints, Mobile Money Services, Uganda, Service Providers, Users.

Introduction

Mobile money (MM) as an alternative financial delivery channel has been used worldwide including Uganda. In the broadest sense, MM is a platform which allows people to use mobile phones like wallets to transfer money, pay for goods and services and conduct banking services (Chatain, 2011). According to Ndiwalana, Morawczyrski and Popov (2011), MM is a term that refers to the money stored using the Subscriber Identity Module (SIM) card as an identifier as opposed to an account number in the conventional banking sense. MM has been defined by Demombynes and Thegeya (2012) as a system of electronic money account that can be accessed by mobile phones. Foster, Hope, Krolikowski and Cohen (2012) define MM as an electronic payment system that enables money transfers to and from an electronic account that can be accessed via ordinary mobile phones. These definitions seem to suggest that Users of MM services can access the account at any point in time provided there is network availability. Here, MM is understood to mean a service in which Users bank and execute financial transaction with the help of an ordinary mobile phone. According to Desai (2011), a service is considered MM if it fulfills the following criteria: i) the service must offer at least person to person transfers, bill payments, bulk payments, and storage of value, ii) a service must exploit a network of transactional agents outside bank branches for cash in or cash out, iii) the service must offer an interface for initiating transactions for customers and agents, iv) customers must be able to use the service without being previously banked.

Globally, MM is expanding at an ‘an exceptionally accelerated’ rate (Nandhi, 2012). According to Desai (2012), there were 150 live MM services for the unbanked in 72 countries.

This growth has been driven largely by Mobile Network Operators (MNOs). These MNOs run 72 per cent of live deployments with most of them in Sub-Saharan Africa (Davidson & Pénicaud, 2012). With a link to mobile phone numbers by means of an inbuilt SIM-card application, MM services enables cash withdrawals and deposits facilitated by a network of retail agents. Tobbin (2011) asserts that MM services include all the various initiatives covering long-distance remittance, micro-payments and informal air-time bartering schemes. All these are aimed at bringing financial services to the unbanked using mobile technology.

The use of mobile phones in providing financial inclusion is slowly but gradually evolving in developing countries (Simiyu & Oloko, 2015). For example, in Uganda the relationship between financial inclusion and the unbanked is gradually contributing to economic development in the country as a result of the usage of MM (InterMedia, 2013). MM services were introduced in Uganda in 2009 by MTN Telephone Company. It was only until 2013 that guidelines were issued by Bank of Uganda to guide the operation of MM services in the country. One of the major objectives of the guidelines was to provide clarity on MM services to customers, MM service providers, licensed institutions, MM agents and other parties involved in the provision of MM services in the country. MM is defined in the Bank of Uganda Mobile Money Guidelines (2013) as: an e-money available to a user to conduct transactions through a mobile phone. MM provides a platform which MM agents can use to leverage the financial services for the needs of the poor and unbanked. This is very helpful to them as it reaches them faster and cheaper (Morawczynski, 2009) more so as banking infrastructure in the country is severely limited. MM services have created an enabling environment whereby mobile phone users can enjoy financial services at their convenience as mobile phone operators deliver MM services to the clients. In return, the clients use their services to receive and make payments using their mobile phones. While reviewing literature on academic and practitioners' publications, Diniz, de Albuquerque, and Cernev (2011) noted lack of worldwide dissemination of MM service yet it has a huge potential-- an indication successful cases are not clearly understood making it hard to replicate the consequences. It appears, though, there are certain constraints hindering the success of MM services in many countries.

Aside from numerous benefits including easiness to use, accessibility for the un-bankable population, convenient savings, remittances for international transactions, possibility of transacting small amount, and boosts to economic growth; from a practical standpoint, several factors seem to frustrate the enjoyments of these benefits. For example, Okello, Massa and Mayanja (2014) in their study of the effectiveness and challenges of using mobile money services in the implementation of the special assistant grants for empowerment programme in Uganda, cite some of these challenges as lack of ownership of mobile phones, unavailability of agents, cash balancing problems due to lack of float and expensive transaction charges. While much attention has been paid to the various strategies to expand MM services to reach all parts of the country especially the rural areas, comparatively little attention has been paid to the constraints in the provision of MM services in the country. If nothing is done to address these constraints there is likelihood that the intended beneficiaries will lose trust in MM services, because they will find the services unreliable, or continuously excluded in financial sector or completely prohibitive to transact business. Such a flawed service is unlikely to be appealing to the beneficiaries with subsequent negative results for the economic development of the

country as a greater percentage of the population who are unbanked would not be able to actively participate in the financial sector. On the supply side, little attention has been paid by the MM service providers and policy makers to understanding reasons other than expansion of the services for why there are many complaints concerning MM services. This article examines factors hindering the effective utilization of MM services from the perspectives of the users and agents to show that addressing these constraints is crucial if MM services are to fulfill the needs of the beneficiaries and betterment of the economic development of the country.

The article scrutinizes constraints in using MM in Uganda by examining factors that hinder its successful implementation from the perspectives of the users and agents. The findings of this study may benefit agents and operators to further enhance MM services usage by eliminating or minimizing the negative factors that impede the benefits of using MM services. Furthermore, understanding the perceptions of both the users and agents is crucial because successful usage of MM services requires satisfaction of the prime stakeholders. The remainder of this article is structured as follows. The following section reviews the relevant literature on the challenges, constraints, negative factors or hindrance factors of MM services usage. This is followed by the research methodology section. Then, the subsequent section discusses the findings of the present study. The final section provides the implications, limitations and suggestions for future research, and the conclusion of the study.

Literature review

Earlier researches on MM have focused on its development, promotion and usage in both developed and developing countries (Anderson, 2010). Some of these researches have, for example, focused on the challenges facing MM services (Hinman & Matovu, 2010) in developing countries. These studies reveal that MM services have turned out to be a turnaround project in ensuring financial inclusion of especially the poor and the unbanked amidst numerous constraints. The work of Budree and Williams (2013) has also verified this argument. Several constraints have been contributed to this state as demonstrated by study results conducted in form of case studies, questionnaire surveys and interviews.

Mbogo (2010), who used questionnaire survey to investigate success factors attributable to the use of mobile payment, confirms the existence of constraints in the use of MM services in Kenya. Key study findings showed that insecurity, costs; -- for example, in form of transactions charges-- have negative connotation to the behavioural intention to use and actual usage of mobile payment services. Considering the nature of these constraints, there is a likelihood that not many people would want to use MM service for fear of insecurity and high costs incurred in using them. Elsewhere, in Tanzania, Senso and Venkatakrishnan (2013), who used a cross-sectional survey approach, noted that much as there was rapid expansion of MM services in Tanzania, there were challenges affecting penetration and expansion of the services. According to them, the major challenges were attributable to problem of agents lacking financial capital problems for agents, unavailability of network coverage and regulatory barriers. They concluded that these challenges were the cause of low penetration of MM services in Tanzania.

Other literature has shown that provision and usage of MM services were encumbered by a lot of constraints. For example, an in-depth investigation study on the users' intention to use

MM services by Odia (2012) showed there are massive constraints in the users' intention to use MM services. Using a questionnaire and semi-structured interview, the study indicated that predictors to the dis-intention in the use of MM services in Nigeria included inconvenience, insecurity/lack of privacy, perceived ease of use/perceived usefulness, with inconvenience being the most significant of all factors. Likewise, in a self-administered questionnaire survey, a study conducted by Tobbin (2011) in Ghana confirms these findings. The study found out that perceived ease of use and perceived usefulness were great contributors to the usage of MM services in Ghana. The study also found perceived trust, trailability and perceived risk significantly affect behavioral intention. A study by Ngugi, Pelowski and Ogembo (2010) has shown that there might be rapid growth of MM services in Kenya, but it still poses constraints such as frequent system failure, insecurity and fraud as well as electronic float among most agents. In their study on the pattern of MM services usage in Kenya, Higgins, Kendall and Lyon (2012) corroborate earlier studies. For instance, the study revealed that high tariffs and inadequate access to record-keeping, including payment-management interfaces, were main constraints to the adaption of MM services.

In Uganda, a study conducted by InterMedia (2012) based on interviews with individual registered users of MM services, reported that common constraints included the inadequate number of agents, especially in rural areas; inconsistent performance of mobile money agents; insufficient cash to help with transactions; agents' absenteeism; and insufficient understanding of mobile application and network problems.

Challenges affecting the utilization of MM services as outlined in these studies are real even though the findings, if relied upon may, be anecdotal as they majorly leave out the key stakeholders; the agents and users. Most studies have concentrated at uncovering the general challenges to MM adaption and implementation as previously discussed. MM services, which can be viewed as a legitimate form of financial inclusion, especially of the poor and the unbanked, have the potential to provide as system to increase savings culture, satisfaction of financial needs, and real financial inclusion (Amin, Supinah, Aris & Baba, 2012). With regard to a fuller realization of the benefits of MM services, these features have not been looked at in study settings exclusively centered on the perspectives of the users and agents. The main gaps exist in systematic assessment of constraints in the usage of MM services from the perspectives of the users' - and agents. Even though current research suggests that there is rapid expansion of MM services in the country amidst numerous challenges, empirical evidence is still limited. This study, therefore, aims to address some of the existing gaps in the previous studies from the perspectives of the users' and agents. The study postulated that MM services, now rapidly growing throughout the country, are subject to some constraints. The aim is, therefore, to find out the perspectives of the users' and agents who are prime stakeholders in the usage of MM services. Hence, this study fills the gaps in the literature by investigating the factors hindering the use of MM services in Uganda, and evaluating the differences in the factors, as perceived by the two key players (users and agents).

Methodology

Research instrument

In achieving the objectives of the present study, a questionnaire survey was used. The questionnaire was developed by the researcher after a review of literature on MM services in both the developed and developing world. Additional factors were added from literatures about financial inclusions. The questionnaire consists of two main parts. Part A consists of the demographic information of the respondents and Part B uses a Likert scale to measure the importance of MM services usage constraint factors on a scale of 1 to 5, where '1' is most important and '5' is not important. Table 1 provides the list of twenty five constraints listed in the questionnaire.

Table 1: Constraints in utilization of MM services

No	Constraints
1	Poor network connectivity
2	Poor function support structures
3	Lack of electronic cash float
4	Risk or fraud in MM transfer
5	Low electricity coverage for users
6	Agents unavailability
7	Issuance of fake notes from agents
8	Limited MM service varieties
9	Requisite of ownership of a mobile phone
10	Theft of mobile phone
11	Death of an owner of mobile phone
12	Trailability, e.g., recovery from wrong contact
13	Not all phones are compatible with MM
14	Insecurity
15	Lack of financial capital problems for agents
16	Lack of technical inoperability
17	Perceived trust
18	Regulatory barriers
19	Liquidation and rebalancing requirements
20	Expensive transactions charges
21	Agents' absenteeism
22	Convenience
23	Lack of information and understanding among non-users (illiteracy)
24	Frequent systems failure
25	Lack of adequate record-keeping

Source: *Adesina (2010); Amin, Supinah, Aris and Baba (2012); Budree and Williams (2013); Hoope (2013); Marumbwa and Mutsikiwa(2013); Nyaga and Ogollah(2015).*

Questionnaire distribution and data collection

Before the distribution of the questionnaire to the target respondents, a pilot study was conducted to ensure that the statements used clear wording that was understandable, and also to estimate the time taken in completing the questionnaire (Sekaran, 2013). Useful feedback and various suggestions were received from the pilot test respondents, particularly concerning the wording of the items in the questionnaire. Modifications and improvement were made to the questionnaire items by rewording and reprising some of the items to better reflect the Ugandan context of MM services. Consequently, the questionnaire's content, structure, clarity and readability were improved.

The questionnaire survey was distributed to the participants in the four 'original' districts of Northern Uganda, namely, Gulu, Lira, Arua, and Kitgum. The researcher used purposive sampling techniques to select participants for the study. In the main, these participants were selected through previous researcher's contacts of close associates as well as MM telephone service points in these districts. The questionnaire was distributed to ten MM agents in each of the four districts, making a total of 40 agents who were potential respondents as well. Each of the agents was given three questionnaires and requested to identify a suitable MM users to whom the questions were given. A total of 120 potential users were targeted. In all, a total of 120 questionnaires were distributed to the participants. A cover letter was attached to the questionnaire to explain the purpose of the study and assure participants of the confidentiality of the information provided.

Data analysis

The data collected from the questionnaire survey were analyzed using the Statistical Programme for Social Sciences (SPSS) software version 16. The mean score and mean score ranking were used to obtain the relative impact of each constraint factor for MM service usage. In investigating the differences in the opinion between the two groups of respondents on the importance of the MM service constraints, the independent t-test was conducted.

Findings and discussion

Response rate

The responses received for this study through the questionnaire were very satisfactory. This is based on the returned questionnaire forms that were duly completed by the respondents. Results of the collected questionnaire showing the response rate are shown in Table 2.

Table 2: Response rate

Response	Frequency	Percentages
Total distributed	120	100
Total received back	100	83.3
Unusable/partially completed	02	2.0
Usable	98	98.0

Source: Field data (2016)

Based on the information provided by the respondents in the questionnaire, Table 2 shows that a total of 100 questionnaires were received back making a response rate of 83.3 percent. Out of these questionnaires, two were found to be unusable as they were half-filled, representing 2 per cent of the questionnaire returned. This left a total of only 98 questionnaires which were found usable, making 98 per cent of the total questionnaire returned.

Demographic information of the respondents

Respondents' demographics were solicited so as to establish the reliability of their perceptions on the questionnaire items. Table 3 provides information on the background of these 98 respondents of whom 40 were agents while 58 were the users.

Table 3: Demographic profiles of respondents

Variable	Indicators	Frequency	Percentage
Sex	Male	39	39.8
	Female	59	60.2
	Total	98	100.0
Age	18-30	34	34.7
	31+	64	65.3
	Total	98	100.0
MM services	Agents	40	40.8
	Users	58	59.2
	Total	98	100.0
Users	Regular (monthly)	30	51.8
	Irregular (once in two months)	22	37.9
	Others (once in 6 months)	6	10.3
	Total	58	100.0
MM operators	MTN	15	37.5
	Airtel	13	32.5
	Africell	02	5.0
	MTN & Airtel	08	20.0
	MTN & Africell	01	2.5
	Airtel and Africell	01	2.5
	MTN, Airtel and Africell	00	0.0
Total	40	100.0	
MM usage	Conversant	62	63.3
	Aid of third party	36	36.7
	Total	98	100.0

Source: Field data (2016)

Table 3 above reveals the demographics of the respondents whose completed questionnaires were used for further analysis in this study. There is a gender bias in the study as indicated by 60.2 per cent of the respondents who were female and only 39.8 were male. The indication is that more females tend to use MM services in Uganda than their male counterpart. Age wise, the highest age group was those above 31 years who were 65.3 per cent in comparison of 34.7 per cent below 31 years. This means the use of MM services is less common among the youth in Uganda.

The researcher also determined the composition of MM service usage in the country in terms of agents and users. Table 3 indicates that agents are less with only 40.8 per cent while the users were 50.8 per cent. This implies that there the realm of being an agent for MM services has not been fully exploited in Uganda. Likewise the researcher determined the frequencies in which Users made good use of MM services.

Further, the results in Table 3 shows that regular users, that is, those who used the service at least once a month was the highest with 51.8 percent, followed by those who used in once in two months with 37.9 per cent and lastly those who used it once after every six months who are 103 per cent of the total users of MM services who participated in the study. This implies that those who used MM services at least once a month were more than the rest and hence ready to benefit from the services on a regular basis.

Of the available common telephone operators offering MM services in Uganda, the researcher tried to establish the number of agents who used the services of these operators. Table 3 indicates that agents who used MTN were many with a whole 37.5 per cent. In chronological descending order of Airtel at 32.5 per cent, MTN and Airtel at 20.0 per cent, Africell at 5 per cent, MTN and Africell tallied with Airtell and Africell at 2.5 per cent. These results reveal that there were more MTN telephone agents than all the other telephone companies operating MM business.

Lastly, the researcher was further interested to know whether agents as well as users with conversant to operate and use MM services. It was discovered through the results presented in Table 3 above that 63.3 percent of the respondents were conversant with the operation and use of MM services as opposed to 36.7 per cent who needed the aid of a third party in operating and using MM services. The demographic information of the respondents shows the credibility of the respondents of the present study, and, hence, the reliability of their perceptions in respect of the present study.

Results and discussions of MM service utilization constraints

The following two sub-sections discuss the results of the overall respondents and differences in the perceptions between the two groups of respondents, respectively.

Table 4: Perceptions of survey respondents concerning the relative importance of constraints in utilization of MM services

No	Constraints	Users		Agents		Overall	
		Mean	Rank	Mean	Rank	Mean	Rank
1	Poor network connectivity	1.59	1	1.53	1	1.56	1
2	Lack of electronic cash float	1.62	2	1.58	2	1.60	2
3	Not owning a mobile phone	1.69	3	2.62	3	2.16	3
4	Low electricity coverage for Users	1.73	4	2.78	4	2.26	4
5	Risk or fraud in MM transfer	1.98	5	2.79	5	2.38	5
6	Agents unavailability	2.01	7	3.38	11	2.69	6
7	Issuance of fake notes from agents	3.44	19	3.56	15	3.50	21
8	Limited MM services varieties	2.49	8	3.53	13	3.01	8
9	Poor function support structures	3.31	14	3.66	18	3.48	19
10	Theft of mobile phone	3.32	15	2.80	7	3.06	9
11	Death of an owner of a mobile phone	3.34	16	2.82	6	3.08	10
12	Triability, e.g., recovery from wrong contact	1.99	6	3.67	19	2.83	7
13	Not all phones are compatible with MM	3.87	21	3.62	17	3.74	24
14	Insecurity	3.06	12	3.55	14	3.30	15
15	Lack of financial capital for agents	3.15	13	3.11	9	3.13	13
16	Lack of technical inoperability	3.87	22	3.06	8	3.46	17
17	Perceived trust	2.83	11	3.40	12	3.11	12
18	Regulatory barriers	2.33	9	3.87	21	3.10	11
19	Expensive transaction charges	3.51	20	3.24	10	3.37	16
20	Agent's absenteeism	3.38	18	3.61	16	3.49	20
21	Convenience	2.63	10	3.73	20	3.18	14
22	Frequent systems failure	3.37	17	3.55	14	3.46	17
23	Lack of adequate record-keeping	3.34	16	4.01	23	3.67	23
24	Liquidation and rebalancing requirements	4.14	24	3.11	23	3.62	22
25	Lack of information and understanding among non-users	4.63	25	2.31	24	3.47	18

Source: Field data

As shown in Table 4, the mean scores for the twenty five factors range from 1.53 to 4.63. The ranges indicate that each factor has unique importance as perceived by the respondents.

Table 4 shows that the ranking for the top five constraints, as well as the last two least important hindrance factors, are the same for both the Users and the agents. The finding mirrors the results of the overall respondents. For the top five constraints, there is a variation in the perception of the Users and agents indicated by mean scores. For the least two important constraints, they are less important to the agents than the Users. However, for the remaining factors there are some differences in the mean scores and mean score rankings between the two groups of respondents.

Results in Table 4 reveal that the five main variables that make MM services very unattractive, leading to failure to use them include poor network connectivity (Ayo, Ukpere, Oni, Omote & Akinsiku, 2012); lack of electronic cash float (Senso & Venkatakrisnan, 2013); not owning a mobile phone (Aker & Mbiti, 2010); low electricity coverage for users (Jack & Suri, 2014) and risk or fraud in MM transfer (Dupas, Green, Keats & Robinson, 2012). In the views of the respondents, these have increased the inaccessibility of MM services following increasing loss of trust over time, and do not have potential to provide proper MM services in the country (Ndiwalana, Morawezynski & Popov, 2011). They have in-built barriers to the usage of MM services, making it an impossible task to achieve that for which the establishment of MM services was intended for (Dupas, Green, Keats & Robinson, 2012), adding to the inefficient and unreliability of MM services including for example, the message that allows the sender and receiver to obtain MM services.

Overall respondents' perceptions concerning the importance of hindrance factors

Table 4 depicts that the top five negative factors for MM service usage are perceived as either most important or important by the overall respondents. Out of the five factors, one factor, 'poor network connectivity', was perceived as the most important factor that impedes the implementation of MM service usage. The remaining four factors were perceived as importance hindrance factors in respect of usage of MM services. The factors in descending order of negativity include 'lack of electronic cash float', 'not owning a mobile phone', 'perceived risk of fraud', and 'low electricity coverage for users'. While twenty one factors were perceived by the overall respondents as either important or not important for successful usage of MM services, one factor 'lack of adequate record-keeping', was perceived as unimportant in the usage of MM services in Uganda.

The factor 'poor network connectivity' (mean=1.56) is the most important factor that hinders the successful usage of MM services in Uganda. The result is evidenced by the fact that although MM services were launched in Uganda in 2008, telephone companies have not had a deeper investment in ensuring their services were not interfered with- the challenge of network connectivity. There is documentary evidence to show that network connectivity is derailing MM services in many cases. For example, in their study on the implementation of the Social Assistance Grants for Empowerment (SAGE) in Uganda, Okello, Massa and Mayanja (2014) cite a beneficiary who talked passionately about the frustrations of the elderly (beneficiaries of SAGE program) who were often made to sit for a long time waiting for network connectivity before they were cashed out. Similarly, Senso and Venkatakrisnan (2013) examined the challenges facing MM transfer services and their expansion in Singida, Tanzania. They found that the major factor that hindered a large population of customers from using the service was network or service failures. It is crucial to have perfect network connectivity, particularly in the countryside as the lack of perfect network may result in a failure in service provision leading to loss of trust by clients.

'Lack of electronic cash float' (mean=1.60) was ranked as the second most important factor that hinders the usage of MM services in Uganda. Inadequate cash float acts as a potential corrosion of clients' trust in the MM services (InterMedia, 2012). Akinto the Ugandan situation, Senso and Venkatakrisnan (2013) in their study on the challenges of MM services

in Tanzania report that some customers were on top of their displeasure with the MM service. This is because it was frustrating for them to move from one agent door or outlet to another encountering answer that they had inadequate float or cash to serve the customers. In most cases this would lead to wastage of time and unnecessary delays which would not enable them achieve the timeliness of the transaction.

The third most important negative factor for the usage of MM services in Uganda is 'not owning a mobile phone' (mean=2.16). This refers particularly to those many people out there who do not own mobile phones. The scope for them to use MM services is very slim and thin. This is because in case they want it they can only use friends' and relatives' phones to send or receive money (Senso & Venkatakrishnan, 2013). This makes them non-regular users who cannot even use any other value added services such as purchase of utility bills and airtime. Even then, regardless of the provider, most registered MM users view MM primarily as a service for sending and receiving money (InterMedia, 2013)

The fourth important factor that deters MM service usage, as perceived by the overall respondents, is 'low electricity coverage for users' (mean=2.26). This factor might also be considered important as it reflects the scenario in Ugandan in which only urban and some semi-urban areas are lit. The rest of the countryside is without electric power. Again this factor is related to the third important factor identified by the respondents as hindering MM services in Uganda. Coupled with the challenge of owning no phones, the few which are 'borrowed' are bound to the serious challenge of charging the phone batteries. In most cases, the rural residents who do not have access to electricity normally pay for charging their phones (Senso & Venkatakrishnan, 2013). This does not only add onto the transaction costs of MM services but it also takes a lot of time charging the phone, say between 6 to 8 hours. Hence, the Government has not done enough to electrify the whole country. It necessarily follows that timely intervention by the government would act as a leeway of tackling low level of usage of MM services in the country.

The fifth negative factor that was considered important is 'risk or fraud in MM transfer' (mean=2.38). The possible reason for this is related to the global concern for money laundering due to MM remittances outside the traditional financial institution regulations. With the commencement and continual usage of MM services, there come on board spam, malware and outright theft of personal financial information (Hoope, 2013). Managing fraud often adds costs and complexity to MM service provision, making it more difficult for the users and agents to realize sizeable benefits. This finding is further supported by Senso and Venkatakrishnan (2013) who also determined that this factor hinders usage of MM services in Tanzania. They confirmed that users sometimes become victims of fraud when, for instance, they have not adequately protected their PIN. Users can also lose access to MM services in case their phones are stolen or when they lose mobile equipment for a significant range of time. Acts of fraud commonly reported in the study included swapping of SIM cards, unfaithful workers, transfer of money from one account to another account unknowingly due to PIN leakage, fake money and fake MM withdrawal text messages.

On the other hand, the factor 'lack of information and understanding among non-users (illiteracy)' (mean=4.63) was rated as not important and ranked as the least negative factor

that hinders MM services usage in Uganda. This shows that the respondents do not view MM services usage as having much of a negative effect on information and understanding among non-users (illiteracy) issue. In fact, with more MM services being rolled out, more non-users may come on board. This finding is consistent with Senso and Venkatakrishnan (2013) in Tanzania where non-users of MM services had only a very basic understanding of the uses and benefits with limited knowledge of the names of the providers in some cases. It appears that people in this category need some serious education.

Differences in the perception of user and agent respondents concerning the importance of constraints.

The researcher scrutinized the differences in the perception of the Users and agents using an independent t-test whose result is presented in Table 5 below.

Table 5: T-test results for the hindrance factors.

No	Attractive factors	t	Significance
1	Poor network connectivity	1.149	0.045
2	Lack of electronic cash float	-1.442	0.151
3	Poor function support structures	2.021	0.093
4	Risk or fraud in MM transfer	0.084	0.935
5	Low electricity coverage for Users	1.686	0.210
6	Agents unavailability	-0.082	0.934
7	Issuance of fake notes from agents	1.194	0.234
8	Limited MM services varieties	1.157	0.231
9	Requisite of ownership of a mobile phone	1.303	0.194
10	Theft of mobile phone	-0.652	0.513
11	Death of an owner of a mobile phone	-0.483	0.625
12	Triability, e.g., recovery from wrong contact	0.774	0.442
13	Not all phones are compatible with MM	-2.090	0.037**
14	Insecurity	1.981	0.046**
15	Lack of financial capital for agents	-0.654	0.512
16	Lack of technical inoperability	-1.468	0.146
17	Illiteracy	0.337	0.542
18	Regulatory barriers	-0.301	0.764
19	Liquidation and rebalancing requirements	-2.191	0.139
20	Expensive transaction charges	-0.786	0.528
21	Agent's absenteeism	1.444	0.146
22	Convenience	-1.554	0.123
23	Perceived trust	0.975	0.640
24	Frequent systems failure	0.331	0.743
25	Lack of adequate record-keeping	1.977	0.042
	Note: **Significant at 5%		

Source: Field data

Based on the results shown in Table 5, there are no significant differences in the importance of the constraints, as perceived by the two MM services players, except for two factors ‘Not all phones are compatible with MM’ and ‘Insecurity’. Based on the mean scores of 3.86 and 3.62 (as shown in Table 4) for the users and agents, respectively, it indicates that the agent respondents rated ‘Not all phones are compatible with MM’ as an important constraint for the usage of MM services in Uganda while users perceived it as neither an important factor nor an unimportant factor. In contrast, as depicted by the mean score results, 3.06 and 3.55 for users and agents respectively, the user respondents perceived ‘Insecurity’ as an important hindrance factor for the usage of MM services in Uganda while to the agent respondents it was neither important nor unimportant.

The main justification for the differences in the perceived level of importance of the two factors is due to the different needs of the groups and the ultimate interest of the two parties. In particular, the agents, whose interest is the ultimate objective of maximizing profit, perceive ‘Not all phones are compatible with MM’ as an important hindrance factor because it limits the number of clients to those with phones compatible to MM, leading to minimization of the profit gains from providing the MM services, which, consequently, hinders them from attaining their ultimate interests. Similarly, users whose primary need is to transact business like paying bills, sending/receiving money to/from loved ones, perceive ‘Insecurity’ as an important factor that could deter them from fulfilling the aspiration to better realize their needs.

Moreover, the possible reason for the statistically significant difference in the perception of the two groups of respondents regarding the two factors is because of the different interests each has in MM services. The agents, who need to obtain licenses to operate, and, later invest some money in form of reserve with the MM service provider, if all the processes are cleared and will have to bear the responsibility to operate the service diligently and sustainably by having regular customers-, perceive ‘Not all phones are compatible with MM’ as an important challenge for them to get engaged in MM services business. Equally, Users, who have to make bill payments, sends/receives money, see “Insecurity” as a negative factor as it may compromise the usage of MM services.

Implications and limitations

The study used a questionnaire survey to investigate the key constraints that hinder the successful usage of MM services in Uganda. In addition, this study also examined the differences in the perceptions of the two main MM services players- the users and agents- in terms of the level of the importance of the constraints. The overall results show that ‘poor network connectivity’, ‘lack of electronic cash float’, ‘not owning a mobile phone’, ‘perceived risk of fraud’, and ‘low electricity coverage for users’ are the top five challenges in the usage of MM services in Uganda. In terms of the differences in the perception between the users and agents, the statistical results indicate that there are only significant differences in the perception for two hindrance factors- ‘Not all phones are compatible with MM’ and ‘Insecurity’.

The findings of the present study not only add to the limited knowledge in this field as MM services usage is continuously progressing in Uganda, but, to some extent, also contribute to practice. In particular, understanding the constraints or negative factors for successful usage

of MM services allows operators, agents and users, to take the necessary measures as an effort in overcoming the identified constraints to ensure maximum benefit is achieved from the use of MM services.

In particular, the findings on poor network connectivity provide a signal to the service providers concerning the need to immediately overcome the issue. This is mainly because network coverage generally in the rural areas is low in Uganda, so the need for countrywide network coverage is considered important by the key players in the sector. To date, only urban and semi-urban as well as some few rural areas to some extent are network covered. Therefore, to ensure the successful and fair implementation of the usage of MM services in Uganda, more network connectivity improvement is required in rural areas where a substantial population is unbanked. Meanwhile, for the urban and semi-urban areas, network connectivity required minimize or eliminate totally occasions of service unavailability and frequent hanging transactions without proper information or notification to users.

In addition, inadequate working capital for the agents must be a grave concern for the government and service providers; be it in the urban or rural locations. It is not uncommon that most agents have limited financial capital in terms of float or cash or both. There must therefore be support provided by the Government in this area to strengthen the MM services market penetration and explanation. To overcome such a challenge, Senso and Venkatakrisnan (2013) suggest that loans of a low interest rate can be provided by the parent mobile service providers or even aggregators. There could also be attractive commissions that would encourage agents to improve their working capital.

Ownership of a mobile phone has so far been scarce in the country. This has affected the use of MM services by potential customers. In this regard, there is need for timely response to subsidize the prices of mobile phones, say through reduction of taxes on them so that many people can possess a hand set.

Cases of loss of money through fraud in the use of MM services are very common and rampant in Uganda. It is not strange that many users lose their money through fraudulent practices. It would seem justifiable that security needs to be tightened starting from agents or their workers who are likely to share information especially on confidential PIN codes of their customers. There are also a number of risky scenarios in which Users' trust can be compromised, for example, sharing a PIN with close relative or family member or even agents themselves in case of emergencies. Intensive education of the users and agents on all possible avenues of fraud could act as a critical measure to solve them.

Mobile phones require the service of charging batteries regularly. Charging batteries is one sure way in which the mobile phone can be on air and therefore able to receive and send money. However, as noted by the respondents, low electricity coverage for users has been a big challenge in the usage of MM services. It appears proper then that availability of reliable electric power in both rural and urban areas is needed to ensure reliable usage of MM services. This is because, according to Senso and Venkatakrisnan (2013) many transactions require prior voice communication before real transaction is made. Also, confirmation or acknowledgement messages are only possible on a charged mobile phone.

Furthermore, with regard to the differences in the perception between the users and agents concerning the importance of a few negative factors, better understanding of the roles and responsibilities of each party is necessary to ensure a win-win situation, which will lead to the maximum benefit being achieved from the MM services and enhanced performance level. This could be done through better dialoging on the best way to move forward in enjoying the services.

This study is not without limitations. Firstly, the sample of this study consists of participants selected from the researchers' earlier contacts. It would be constructive for future studies to increase the sample size and distribute to a larger geographical area or have the questionnaire administered in more districts/regions/countries. Secondly, this study only uses a questionnaire survey; a triangulation of research methods could enrich the study findings.

Suggestions for further research

Future studies may consider using qualitative instruments like interviews or open ended questions, which have access to rich and detailed sources of qualitative variation. There might be other important negative factors that are considered important and valuable for MM services in Uganda, and other countries that could be derived from using other research methods.

Conclusion

The findings of this study are not conclusive, but should serve as a reference guide for further investigation. These insights point to some important challenges that many users and agents of MM services are facing in Uganda. While these challenges are significant, solutions need to be found to overcome them; and it is important to act quickly. It was the goal of this study to make a contribution by identifying and examining these constraints to show that they are not isolated-, and while they should not be thought of as insurmountable, a great deal of work is required to overcome them. In conclusion, despite the limitations, this study offers some relevance concerning the perception of Users and agents' constraints in the usage of MM services in Uganda and how to overcome them.

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