SURVEY OF MOBILE PHONE USAGE PATTERNS AMONG STREET VENDORS IN DAR ES SALAAM CITY-TANZANIA

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Abstract:

The purpose of this exploratory study is to better understand the mobile phone usage pattern among street vendors in the Dar Es Salaam city. The survey data were collected from 174 mobile street vendors in Dar Es Salaam where stratified and convenience sampling were employed. Data were subjected to detailed exploratory analysis through descriptive procedures, and the reliability analysis was carried out by using Cronbach's alpha. The findings show that, among street vendors, mobile phone is commonly used in social perspectives and little in business specifically for M-money and business communication. Furthermore, the results show low perceived difficulties and high perceived benefits of using mobile phones, meaning that there are opportunities of transforming street vending business using mobile technology. Generally usage is very basic and the true benefits of mobile phone access have not being realized by street vendors.

Keywords: Mobile Phone, Street Vendors (SV) and Street Vending Business (SVB)

INTRODUCTION

Street vending is a common form of informal business activity in urban and sub-urban Tanzania. It is defined in different ways, but the popular one is based on business location. This research adopts the definition of (3) who defines it as a business that offers goods for sale to the public, without having a permanent built-up structure from which to sell. Vendors can be a flexible (Mobile) i.e. move from one point to another searching for customers, or stationary (fixed) i.e. they position their products at the same place every day though, the place is not meant for that purpose (3) . Informality of street vending business is brought about the fact; it operates in unauthorized areas, nonpayment of tax, no records in national income, and the absence of business license (41). It is common to find them displaying their products in open spaces, bus stands, sidewalks, parking areas, cross walking bridges, in order to capture the attraction of the traffic. Street vending

business is a resource of employment to the less educated class of people almost in all developing countries; in addition it is source of low price goods, income, and means of livelihood (49). Interview with Dar Es Salaam city council reveals that, there are more than one million (1,000,000) street vendors in Dar Es Salaam City in 2013. Reference (10) study on ICT access and usage among informal business, in Africa established that although there is consensus about the increase in the usage of information technology, mobile phone is the only ICT tool used widely among informal business. Hence there is a need to study how street vendors apply mobile phones in their business operations.

Mobile phone application has proliferated all over the world in recent years. Africa has become the second most connected region in the world, after Asia-Pacific with 0.803 billion subscribers in September, 2013 and annual penetration rate of 63%. In Tanzania the number of mobile phone subscribers

have increased from 126,646 in 2000 to 27.3 million in December 2013, with 61% penetration rate and expected to reach 36.6 million in 2015 (46).Mobile phone use per 100 people stood at 96.2% globally, 63% in Africa and 57% in Tanzania (20).

Even though there is a significant possession and use of mobile phones within business communities in the world, little is known about how each class of businessmen uses it, hence difficult to develop the meaningful mobile phone apps, policy and strategies compatible with a particular group. The previous studies in developing countries centered on either, linkages between mobile phones and SMEs or mobile phones in education, health, or poverty (5, 35, 33). For this reason there was I need to carry out a study on the how street vendors use mobile phones.

The results of this study are important to both academicians and small business stakeholders (owners, government, banks, policy makers, marketers). In the academic arena, it adds value in the existing literature and establishes the gaps for further studies. To the marketers, policy makers, mobile phone producers, and programmers, the findings of this study are useful for   improving the existing products and in developing new one. As a part of my broader research titled "Transforming Street Vending Business by Mobile Technology"; it will serve as situational analysis and a tool for developing a framework, for instantiating application for SVB transformation by using a mobile technology.

Objectives of the study

The general objective of this study is to establish the usage patterns of mobile technology among street vendors; the specific objectives are:

i.   To identify how street vendors use mobile phones in business activities;

ii.   To establish the perceived benefit of mobile phones to SVB;

iii.   To determine perceived difficulties of using mobile phones among street vendors.

LITRATURE REVIEW

Theoretical perspective

Technology Acceptance Model (TAM) used to guide the study. The model was proposed by Fred Davis in 1985 by adapting Theory of Reasoned Action (TRA) developed by Fishbein & Ajzen, 1975 (23). Davis shows that, users' motivation to use and accept a system can be explained by three factors, Perceived Ease of Use (PEU), Perceived Usefulness (PU) and the attitudes toward using a system (8). Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would enhance his or her productivity" while perceived ease of use is defined as "the degree an individual believes that using a particular system would be free of effort" (9). TAM posits that PU and PEU use are key determinants of acceptance/rejection of technology in an undertaking. According to TAM, PEU and PU form attitudes toward using a particular system, which in turn determines the intention to use, and then generate the actual usage behavior. TAM is relevant to this study as the street vendors use of mobile phones can be influenced by perceived effortless to use, and the benefits expected from it.

Empirical perspectives
Reference (19) has explored the impact of mobile phone in low income communities in Lebanon, and found that a mobile phone has impacted positively the work, income, family, and freedoms. However the user complained about the high cost for operating mobile phone, and the disturbance from others. The study concluded that the benefits of having mobile phones generally outweigh the expense of having it, hence it is wise to use it in business activities, see also (24). Reference (22) research in Malaysia show that the mobile phone has been a frequently used ICT tool, for owners, customers, and employees in the small business sector, and is used to build stronger relationships in business. Furthermore, it shows that the most traffic in the use pattern was in family and friendship relations side rather than economical perspectives. The study proposed more research in the use of mobile phones in to other business sectors.

Mobile phones are facilitating business operations in various ways; (25) in Ghana finds that mobile phones are used to perform various business activities, and have improved productivity. The findings by (16)

show that, mobile phones' role in business can be seen in operations like sales, marketing and procurement. Apps on a mobile phone enable business to save time reduce costs, increase revenue and productivity; enhance efficiency, and quality service to the customers. Reference (15) in Rwanda has found out that many entrepreneurs use mobile phones, to strength business linkages. Mobile technology is an important source of competitive advantages and value added creation in today's business environment (2). Reference (27) in Kenya has established that the use of mobile phones can increase sales volume, profitability, customer satisfaction. References (1) have added that mobile phones could be used to mitigate the problems facing micro business in developing countries. The cost of buying and operating a mobile phone has been mentioned as a reason for not using it various economic activities in poor countries (31).

A research by (29) in India to find out why consumers do not use mobile phones in business find that , consumer unawareness, device inefficiency, demand for conventional business transactions, interoperability concerns, and personalization needs are the focal inhibitors. Reference (40) in Bangladesh conducted 27 face to face in-depth interviews with retailers, telecommunications companies and bankers to identify barriers to M-commerce adoption in developing countries and find out that, lack of literacy, trust and conflict of interest between telecommunication service providers, and banks were found to be the major barriers to the adoption of m-commerce. In order to increase M-commerce adoption (18) recommended that, companies involved in M-commerce should improve the usefulness of the system, reduce m-commerce cost, design and develop products/services that match with market needs, and the governments should create conducive policy and environments for m-commerce. In general, studies conducted in different African countries have shown that, mobile phones are used primarily to maintain social relations, and very little in economic perspectives (6 and 34) however these were general perspectives, hence a need to study each business category.

METHODOLOGY

Sampling

Respondents obtained by classifying street vendors in to stratum basing on the type of products sold, and then sample selected in proportional to each stratum. The following categories of SV were used; clothes, mixed products, vegetables and fruits, house utensils, shoes, soft drinks, and electrical appliances; see table 3

Table 3: Type of street vendors

Type of business	Nu. Of SV	Parentage
Fruits	18	12.7
Clothes	17	12.0
Mixed Products	18	12.7
Vegetables and Fruits	20	14.1
House Utensils	21	14.8
Drinking water and Juice	18	12.7
Shoes	13	9.2
Electronic Appliances	17	12.0
Total	142	100.0

Source: Field Survey, 2014

Survey instrument

Questionnaires were divided into three sections; section I, II, III and IV. Section I collected information regarding the respondent's profile, such as, gender, age, experience in business, type of business and the level of education. Section II concentrated on the usage patterns. Section three focused on the perceived benefits of using mobile phones, where the respondents were given a set of questions adapted and modified from TAM theory. Section four was purposefully for measuring the degree of agreement on the perceived difficulties of using mobile phones. Before data collection, questionnaires were tested and rephrased.

Quantitative measurement of the variables ranged from ordinal (5-point Likert scale), categorical (yes/no) to interval data (years in business, age, etc.) were used. An ordinal rating scale (Likert-scale) was used when respondents were asked to rate the features of mobile phones used frequently, 5 being very frequently used and 1 being never used. Section three and four of questionnaires used Likert scale to measure the customers' perception behind usefulness and difficulties of using mobile phones, 5 being strongly agree and 1 being strongly disagree.

Interviews were used to solicit information from street vendors, particularly those who were busy. Interview guide used to lead the researcher in the interviewing process. All interviews were audio recorded by using mobile phone, after having the permission from the respondents. Thereafter, each interview was examined in terms of its contents, and was used to support the findings from the questionnaires.

Population of the study

The population of this study was youth street vendors from the Dar Es Salaam city of the age of 18- 26 years. The study was not carried out in a central district as planned earlier, due to the current confrontations between SV and the government to vacate the place. Some of the responses (26%) were not included in data analysis, since they were from the people whose age were above 27 years, and /or had the experience in business for less than one year. Many street vendors were not ready to participate in the study, as they thought that , it was associated with the government initiatives to remove them from the streets. The survey response rate is as shown in Table 1.

Table 1:   Number of Respondents

	Total Sample Approached	Response Received	Usable Response Received	Response Rate (%)
Questionnaires	240	200	142	59%
Interview	42	36	32	76%

TOTAL	282	236	174	61.7%

Source: Field Survey, 2014

Method

Mixed research method was used; Qualitative data e.g. usage behaviour, perceived benefit & difficulties and quantities e.g. usage frequency, tariff, price, age, frequency were collected. Four research assistants were recruited and trained to facilitate data collection.

Data analysis

Quantitative and qualitative methods were used in the data analysis. Descriptive analysis involved the use of percentages, and measures of central tendency derived from closed ended questionnaires; while qualitative analysis was done through content analysis to identify, examine, interpret the pattern and themes of interview and open ended questionnaires. Statistical package for social sciences (SPSS) was used to analyze data.

FINDINGS

Reliability

Mobile phone usage among street vendors was assessed its reliability by using Cronbach's alpha. The findings were 0.89 for using behavior, 0.92 for perceived benefit, and 0.85 for perceived difficulties. High alpha is good as it is caused by high variance, hence indicating a strong internal consistency among the measures.

How street vendors use mobile phone in business activities

Mobile phones used by street vendors

A large number of respondents (96.7%) were using ordinary mobile phones, while 3.5% used smart phones; this shows that, smart phones are not popular within SVB. These findings are contrary to what established by (30) that, 47% of the teen in Africa who are using mobile phones they have smart phones. The high price of Smart phones is the main reason mentioned by street vendors for not using them. However the recent introduction of low priced smartphones by Teckno, Huawei and Nokia may

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increase the number of its users in developing countries. See Table 4.

Table 4: Type of mobile phone used

Brand Name	Type of phone		%	Total
	Ordinary	SmartPhone		
G-Tide	17		12	17
oking	21		15	21
Itel	21		15	21
Ideos	19		13	19
Alcatel	17		12	17
Echo	15		10	15
Huawei	14	3	10	17
Nokia	8	2	6	10
Samsung	5	1	5	6
Total	137		100	143

Source: Field Survey, 2014

Among the mobile phones, Chinese brands like Oking (14.8%), Intel (14.8), Ideos (13.4%) G-Tide (12%), are the most popular, followed by low priced Nokia (8%), and counterfeited Samsungs (5%). No one was found to use high quality brands like apple, sonny, HTC, and genuine Samsung. Chinese brands are preferred because of low prices (up to 20,000Tsh), and their ability to accommodate more than one SIM card (duability), although their durability are questionable (37). Most mobile phones in which street vendors are using are of low prices in which their prices range from 25,000-50,000 T. Shillings (72%), followed by 51,000-75,000 (28.9%) and less than 25000 (19%). See Table 4.

On how they buy airtime, 92% of the respondents were buying credit by scratching vouchers, while the rest 8% was purchased by electronic systems. This entails that the use of mobile commerce among street vendors is low. Findings show that, 90% of the respondents were having more than one SIM card with different network providers; this is motivated by the availability of networks, inter-company calling cost, and the nature of the mobile phones (dual SIM card).

Mobile phone usage pattern

When asked about the length of using mobile phones, most of the respondent's shows that they started to use a mobile phone at the age of 19-23 years (43%),

24- 28 years (40%), and 14- 18 years (14%) respectively. This is indicating that currently a mobile phone is a tool used by everyone in the society, in previous the seven years, only the adult and relatively high income earners could manage to buy and operate a mobile phone.

The amount of money spent on a mobile phone per day for the majority of the respondents were 501-1000Tsh (51%) and 1001- 1500Tsh (26%) respectively. These findings are similar with (35) who have found out that Tanzanians use an average of Tsh. 15,000- 30,000 as a cost of operating a mobile phone per month. This is about 12%- 18% of the daily profits earned by street vendors, implying that, to them mobile phone is an important tool.

Results show that, voice calls are a frequently used service on mobile phones (100%), followed by SMS (90%), calculator (62%) alarm (60%), radio 55%), camera (25%), video (35%),and rarely internet and social media (18%). In order to reduce cost, street vendors are found to buy the daily bundles, which cost an average of 450- 1000 Tsh. per day; from this bundle a user can make up 25 minutes call, send up to 400 SMS, and get up to 150MB depending on the network provider .

When street vendors were asked about the communications received very often per day; family, friendships, and business became the top with 97%, 87%, 65% respectively. These findings relate to the observations of (38 and 25) that the use of mobile phone in social affairs outweighs other applications like health, education, and business.

As for the application of mobile phones, in business activities, the findings show that 68% of the respondents use it for M.Money, 53% of business communication, 18% use it for data storage and processing, and 12% for product promotion. No one was found to use mobile phone for M-banking. Mobile money is a common phenomenon among Tanzanians; (46) report shows that, the overall awareness of mobile money has reached 97% of Tanzanian who are eligible for using it.

In terms of service providers, the majority of the respondents are subscribers of Tigo (40%), Vodacom (36%) and Airtel (24%). These results are contrary to actual Tanzania's marketing situation in which the market shares are dominated by Vodacom (36%),

Airtel (33%), Tigo (23%), Zantel (7%), and TTCL (1%) respectively. There is no one found to subscribe from neither Zantel nor TTCL; according to the respondents, subscription choice is highly motivated by operation tariff, mobile money services, and roaming effectiveness.

Perceived benefit & difficulties of mobile phones

The study finds that 79%, of the respondents strongly agree and consent with the perceived benefit of using mobile phones in street vending business; only 10% disagree, while 11% were not sure. However, 86% of surveyed SV strongly disagree, 4% disagree, 5% agree, and 4 % strongly agree, with the perceived difficulties of making use of mobile in SVB. Meaning that to them, using a mobile phone is an easy (free from any difficult) and thus they see the potential benefit of using it in strengthening their business, though they are not using it. See table 2.

Table 2: Perceived Benefits and Difficulties of Using Mobile Phones

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Perceived benefit of mobile phone in SVB in %	70	9	11	10	0
Perceived difficulties of mobile phone in SVB in %	4	5	1	4	86

Source: Field Survey, 2014

Discussion of the findings

How SV use mobile phones in business activities
The findings show that 97% of the respondents approached for this study were having mobile phones, and they have used it for more than five years. These findings exceed the estimation of the Tanzania bureau of statistics, which shows that 92% of the adult (above 15 years) are using mobile

phones; hence street vendors are "enthusiastic users". The number of mobile phone users and operators has increased dramatically over the years in Tanzania. While in the late 1990s there was only one network provider to date, there are seven network providers: Tigo, Vodacom, Airtel, Tanzania Telecommunication Company Limited (TTCL), Benson and Smart Tanzania (new) with more than 27 million subscribers. The competition within the industry has reduced the call tariff; for example, on net Weighted Average Prepaid Tariff declined from 219Tsh in 2005 to 89Tsh In 2012 (46), this enables even the low income earners like street vendors to use mobile phones. Public and private institutions in Tanzania are using mobile phone services to inform, receive payments, and to promote their products.

The study reveals that, the most used services in a mobile is voice calls, followed by short message services SMS and alarm. Voice calls popularity among street vendors are derived from the fact that they are easy to operate, compare with SMS, internet or multimedia services (MMS). Street vendors contend that voice calls give immediate response and takes little time to make, although there is a possibility of forgetting what has been communicated. The frequency of making calls ranged from 6 times a week to up to 10 times a day.

SMS trendy are inspired by its price and convenience; a vendor can write or read SMS anywhere while working, even in a noisy space like a market place, bus stand, at any public gatherings. The study shows that in an average street vendors send and receives 35- 40 SMS per day. The use of SMS in developing countries is higher than in developed countries, where they use social media as a substitute (20). However the study unfolds that, most of their communications are either friendship or family rather than business affairs. Reference (52) in China found the strong relationship between the level of education and the mobile phone usage, i.e. the higher the level of education the greater the possibility of becoming an advance user of mobile phone. For the street vendors whose level of education is low, they become basic mobile phone users.

Although street vendors are aware about the existence of social media networks like Facebook, Twitter, and WhatsApp, its usage is still low, caused by the type of mobile phones which they're using,

(incapable to access internet). A few SV whose mobile phones were capable to access internet, were reported to use Facebook and WhatsApp to chat with their friends. These findings are supported by (21) in Kenya who have found out that lack of tools like computers are one of the reasons for small and medium enterprises not to use social media. Reference (21) research have established that, social media is an important component for business growth in terms of market, price, and innovation; hence there is a need to use it though an initial cost of buying the internet, enabled mobile phones may be higher. Social media touches every facet of our life, in business it can do more than marketing and communication (39). Street vending business operations like stock control, customer searching, order management, and searching for business opportunities can be done via social media. The companies that engage with their customers online, for example by the use of social media have proved to be more successful than that which does not (28).

In terms of business applications, street vendors are found to use mobile phones mostly in mobile payments, business communication, data processing and promotion of products. In street vending context where the capital and the level of education are low, M- money is considered to be a substitute of a formal bank. With M- money a vendor can receive and make payment, buy airtime, and pay utility bills anytime and anywhere. Street vendors are found to use M-money to receive and make payment, buy time, send money to the family members, and importantly as a bank save their money. These results support (11) in Kenya, who pointed out that, M- money is used as a saving tool, for unbanked population. However, the use of m-money among street vendors constrained by security matters, frequent system failure, service intermittent, and a slow service at peak hours (36). The majority of the respondents were using M- Pesa (Vodacom) and Tigo Pesa (Tigo) for sending and receiving money, the choice was attributed by wide coverage, accessibility, and acceptance of the companies. Tanzania is a second country in the world for having a large number of M-Money users; according to (12) study, in December 2013 there were more than 11 active M- money accounts, 153,569 agents, and 1.8 billion USD mobile transactions. Hence, mobile money serves as a means of banking to unbanked people in Africa.

Furthermore, this study reveals that, instead of a street vendor to walk for kilometers to look for the supply of products, they were found to make calls and send SMS to seek for the information from suppliers.

Vendors are also found to use their mobile phones to make business communication with suppliers, customers and fellow traders, however less frequently. The main communication messages were about trends in the market, availability of the new stock, daily route, credit worthiness, appointments, existence of policemen, and confirming payments. Mobile phones as a business communication tool enables the user to record video and audio, multimedia files, and shares it with customers, other business and suppliers, though SV found to use it for voice calls and SMS only. Unlike the other business communication tools, mobile phone is accessible anywhere, anytime, and by anyone, hence effective communication is achieved (14). Prior to the introduction of mobile phones SV were using either letter or word of mouth to communicate with their counterparts.

Also SV are using their mobile phones as data processor (calculator) to undertake simple computations, for example; to calculate selling price, gross profit, and discounts. Ordinary mobile phones can perform basic mathematics like addition, subtraction, multiplication, and division. Calculator in a mobile phone enables street vendors to make a decision on price to sell, the amount of discount, and profitability of the business.

Apart from mathematical computation, SV also use mobile phone to promote products. They use mobile phone to inform, remind, and persuade customers to buy their products. Mobile ads are considered to be efficient, effective, flexible and cheap compare with other forms of advertisements (45) although some of the customers tend to ignore SMS ads, and delete it before reading (30).

Perceived benefit of mobile phones
Almost all approached street vendors were positive about the perceived benefit of using mobile phones in business. They strongly agree that a mobile phone can be used anywhere, anytime, and it is convenient, immediate, and enjoyable if used in conduct street vending business. Other strongly perceived benefits

of mobile phone in doing street vending business are its efficiency, usability, inexpensive, and benefits. Street vendors reported that, a mobile phone can reduce the walking distance and increase the size of their markets and so boost their sales volume and profitability. By citing examples of the benefits of mobile money street vendors concluded that, a mobile phone can be a transformation device of the modality of their business. Reference (9) noted the link between users' beliefs about a technology's usefulness and the attitude together with the intention to use that technology .The immense ownership of mobile phones among the street vendors are caused by the perceived benefits of using it.   Vendors believe that, by using mobile phones, their business activities will be easy, efficient, and effective. Studies indicate that, street vendors are constrained by low levels of formal education, conflicts with local authorities, lack of credit worthiness, lack of business skills and marketing strategies; all these can be reduced or eliminated by the use of mobile phones. Reference (4) in Ghana findings suggests that, a mobile phone is useful in pre trading, during trade and after trade activities.   This result supports the findings of (43 and 42) who found out that the positive response against the perceived benefit of a mobile phone.

Perceived difficulties of using mobile phones
On the other hand, street vendors were negative (disagree) with the perceived difficulties of using mobile phones in business, although they commented that, the language used should be Swahili (native language). They cited examples; like how to buy

credit with M-money, and argued that, nothing is difficult unless you are not interested in. These findings support what has been found by (13 and 47) who mentioned prior similar experience, tool functionality, tool experience, perceived enjoyment, and objective usability as factors affect system easiness to use. These findings are similar to (48; 26 and 17) whose studies unveil that the mobile phone is perceived to be easy to use in a different context.

Conclusion
This study has provided insightful on the mobile phone usage pattern among street vendors in Dar es Salaam Tanzania. It has revealed that the usage pattern among street vendors in is 98%, and is dominated by family and friendship usage; however, there is a small usage in business contexts like mobile money, business communication and simple mathematical computations. Also, there are high perceived benefits and less perceived difficulties of using mobile phones in SVB context. These findings imply that there are opportunities of using mobile phones to transform the street vending business, for example in the provision of business education, registration, taxation, legalization, and business formalization in general. From these findings, it is recommended that, since there is no direct relationship between mobile phone ownership and the application of mobiles in business, there is a need to train teenagers, particularly primary school and secondary leavers on how to apply mobile phones in a business context. Future research should focus on how to transform SVB by mobile technology.

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