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▶ **To cite this version:**

Joel Rumanyika, Matti Tedre, Mikko Apiola, Solomon Sunday Oyelere, Nasibu Rajabu Mramba. Contemporary Challenges in Street Trader-Customer Interaction Through Mobile Devices in Dodoma, Tanzania. 15th International Conference on Social Implications of Computers in Developing Countries (ICT4D), May 2019, Dar es Salaam, Tanzania. pp.76-88, 10.1007/978-3-030-18400-1_7 . hal-02285294

HAL Id: hal-02285294

https://inria.hal.science/hal-02285294

Submitted on 12 Sep 2019

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Contemporary Challenges in Street Trader- Customer Interaction Through Mobile Devices in Dodoma, Tanzania

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Abstract. Street trading is a common form of informal work carried out by almost one million Tanzanians. Majority of street traders use mobile devices to interact with customers. Despite this interaction, there is no abundant information showing if their interaction is mainly effective and does not face challenges. This study investigated the challenges faced by street traders and customers interacting through mobile devices in Dodoma, Tanzania. Qualitative data were collected using in-depth interviews with 42 street traders and 32 customers, followed by focus group discussion with eight street traders and six customers. Thematic analysis was used to analyze the data. The results show that street traders and customers occasionally interact using mobile phones. However, that interaction is challenged by issues connected to financial, technical and social aspects. These challenges are; lack of reliability among mobile phone interacting customers, mobile network problems, lack of business communication transparency, deep-rooted customary practices and perceptions of street trading, poor customer care, lack of consensus over mobile business etiquette, poor quality of product pictures, short mobile internet bundle validity, mobile phone battery life, and costs of mobile handset, transactions, vouchers, packages, and transport. The results call for the option of bundle and transaction cost reduction, network infrastructure improvement and provision of education to street traders and customers so that they realize the significance of business interaction using mobile devices contrary to what is happening recently, as well as abiding by communication ethics to minimize the likely challenges.

Key words: Street trading, customers, mobile device.

1 Introduction

There is a wealth of literature describing the challenges associated with mobile device use for informal workers in developing countries [1, 2]. These challenges involve the cost of handsets, charging cost, airtime, repair, and network problems [1, 2]. Street traders are one type of informal workers who use mobile devices to interact with customers. However, it is not known if they face similar or dissimilar challenges. According to Wongtada [3], street traders are *"persons who offer goods for sale to the public without having a permanent built-up structure"*. They are commonly referred to as, hawkers, peddlers, petty traders, street vendors, or "Machinga" in Tanzania [4]. In a large city of Dar-es-Salaam there are more than one million street traders [5]. In Dodoma urban, they comprise about 7.1% of the entire population in the area [6].

In Sub-Saharan Africa (SSA) countries, there are a number of studies reporting on the benefits perceived by informal workers through mobile technology use [7, 8]. For example, in Tanzania, a number of studies report on how access to mobile phones has radically changed the means through which small scale farmers and other informal

workers interact and transact using mobile services, such as voice calls, SMS, social media and, mobile money [9, 10]. There is a scarcity of studies on challenges faced by informal workers with reference to mobile device use and customer interaction; although there are some studies reporting the challenges faced by small scale farmers and women entrepreneurs [11, 9]. This implies that street trading as one form of the informal sector is not fully studied with regard to customer interaction and mobile devices use.

A study by Mramba et al. [12] in Dar-es-Salaam show that street traders use mobile devices, especially mobile phones, to interact with customers. Although street traders use mobile phones to interact with customers, still do not have a reliable information technology strategy for maintaining long-term customer relationships. Thus, the customer-seller relationship usually ends after the initial transaction, and if it happens to be in contact, does not last for a longer duration. This phenomenon could be attributed to lack of knowledge on the significance of prolonged customer-seller relationship or lack of awareness on the opportunities being offered by mobile devices to maintain the relationship. Mramba et al. [12] have shown obstacles that interfere with further interactions between street traders and customers through mobile devices. Mramba et al. [12] study was conducted in Dar-es-Salaam, but the results might be similar or dissimilar to all street traders and customers across the country. This study investigated the challenges faced by street traders and customers when interacting through mobile devices in Dodoma, where the market environment is not similar to that of Dar-es-Salaam. We posed the following research questions to tackle the research gaps identified earlier.

RQ1: How do street traders and customers establish business interaction relationship through mobile devices?

RQ2: What are the challenges faced by street traders and customers interacting using mobile devices?

1.1 Significance of the Study

The motivation for carrying out this study is attributed to the recent broad diffusion and adoption of information and communication technologies (ICTs), particularly mobile devices. These technologies have opened new opportunities for informal workers' activities [13]. There are signs that street traders have adopted mobile phones to interact with customers and indeed they understand the potentials of ICTs in business. E.g. the recent technological innovation of developing mobile applications which are contextualized in ordinary informal workers' languages has reduced communication barriers among buyers and sellers in most areas in the world. This is the initial study that leads to further ICT innovations that might improve street trader and customer interactions.

2 Literature Review

2.1 Theoretical review

There are a number of theories which guide the studies related to understanding the informal sector activities, behaviours, attitude, intention and impact of ICT for their business. First, is the transaction cost theory (TC) which describes the costs incurred by the participants in a commercial exchange. This implies that the higher the cost of exchange the lower the interaction between street traders and customers. The costs referred in TC theory are associated with the costs of running the supporting systems

which are of two categories namely: costs of coordination and actors' motivation [14]. Coordination costs comprise information access and communicating costs experienced during pre-transaction, during-transaction and post-transaction. The coordination costs are such as products' searching, service acquisition, seller-buyer interaction, bargaining and contracts' fulfilment. The actors' motivation costs include: the costs of incomplete transactions which might occur due to ICT system failure or human errors. The costs addressed in TC theory are equated with challenges faced by street traders and customers interacting through mobile devices. In this study, these challenges are summarized as technical, social, and financial. The TC theory is related in this study because it postulates the number of costs which is somehow similar to the challenges which affect the business interaction between street traders and customers through the mobile-enabled information system.

The theory of trust. Trust is defined by Hosmer [15] as "*the reliance by one person, group, or firm upon a voluntarily accepted duty on the part of another person, group, or firm to recognize and protect the rights and interests of all others engaged in a joint endeavor or economic exchange"* Trust is the confidence both parties in the relationship have that one party cannot do something harmful or risky to another. Trust is an aspect of most socio-economic contacts in which ambiguity exists e.g. the electronic commerce environments [16]. This indicates that if there is high trust between two parties there is also high interaction and vice versa is distrust which hinders successfully interaction. Trust theory fits in this study because the components of trust which are: competence, openness, care, and reliability are important for the partners whose interaction relationship is aligned with business value exchange. The commercial interaction between street traders and customers which is conducted using mobile devices need to be regulated by ensuring there is high trust. High trust in both parties interacting keep them from developing negative attitudes towards each other. This will reduce the misuse of mobile contact, poor customer care, and business communication transparency.

2.2 Street Traders and Mobile Technology Use

Street traders are found in most countries of the world [17]. In SSA, street trading accounts for 15%-25% of total informal employment. In some examples from Africa's cities, it contributes between 46% and 70% of total trade value added in countries like Benin, Burkina Faso, Chad, Kenya, and Mali [18]. In SSA, most literature report on the perceived benefits received by informal workers through mobile technology use [19, 20]. The limited number of studies generalize their findings once reporting on challenges faced by informal workers related to technology use. The reported challenges include; use of foreign language, network fluctuation, technical illiteracy, as well as, cost of handsets, bundles, transactions, and airtime [21]. In Tanzania, some studies have explicated just the contribution of mobile phones for street traders' business activities [22, 12]. A study by Mramba et al. [23] found foreign language, mainly English, to be one of the challenging features to street traders' mobile technology use.

3 Methodology

This qualitative research explored the challenges faced by street traders and customers while interacting through mobile devices. The choice of qualitative research approach was due to paucity of prior research on related topic in the chosen area. Exploratory

research is usually employed when one wants to clarify and define the nature of a problem on which later studies can be conducted [24]. Purposive sampling was used to select 42 street traders, from four wards within the central business district for face-to-face interviews and eight street traders for focus group discussions (FGD). Neither number was decided in advance, but purposive sampling was applied in this study because it enables one to base sampling upon reaching a saturation point: that is, continuing to add participants until no new substantive information is acquired [25]. The criteria for selection of street traders were: 1) he\she should be mobile 2) with at least one-year experience in street trading, 3) possessing a mobile device and, 4) offering services or selling products such as, food or drinks, clothes, home utensils, cosmetics, spices, electronics, stationaries, pesticides, detergents, newspapers, plastic bags, and toys. In the case of customers, the majority of interviewed traders managed to identify one or two phone numbers of their potential customers and present them to the researcher. Eventually, 33 customers' phone numbers were identified and the researcher contacted the customers through mobile calls or SMS. The majority agreed to participate in the study, with just one dropping out on the day of the interview. Additionally, six customers agreed to participate in FGD. The interviews with street traders and customers lasted between 15 and 20 minutes, and the FGD lasted for 70 minutes.

3.1 Study Area

The study was carried out in four closest wards to the central business district (CBD) of Dodoma. These wards are, Madukani, Majengo, Viwandani, and Makole. The criteria for selecting Dodoma city is the exponential growth of its urban population due to government shift of administrative activities from Dar-es-Salaam to Dodoma, as well as the availability of street traders who operate their activities mostly in the CBD or in the nearby neighbourhoods.

3.2 Data Analysis

Thematic analysis was used to categorize respondents' opinions and ideas into themes. The initial stage was to label research questions with anchor codes in order to help in the organization of initial codes. Using selective coding, data were analyzed according to pre-defined coding procedures, which followed one another in their degree of intensity. All recorded interviews and FGD were transcribed into verbatim and then major themes were obtained by combining the sub-themes. Finally, categories were developed to reflect the responses, and also to cover the various themes present in the interview guide. Thematic analysis was used because it facilitates understanding participants' attitudes and reflections on issues which could be mostly used as the measure for best statements and provides also the opportunity for researchers to move beyond calculating statements or expressing the ideas [26].

4 Findings

The findings from this exploratory study are divided into two categories, each describing one of the two major themes regarding the experiences of street traders and experiences of customers. These results are structured by the research questions RQ1 and RQ2.

4.1 How Street Traders and Customers Establish Business Interaction Through Mobile Devices (RQ_1)

Majority of street traders reported that establishing business interaction with customers through mobile devices is influenced by the different circumstances involved during the interaction. These situations include a trader and customer meeting several times in one route, a trader selling products or services a customer prefers, customer and trader meeting by coincidence, and the customer has not planned to buy but he\ she likes the products. One street trader of pillowcases explained how she started business interaction with some customers "…*When I meet customers on my daily business routes I convince them to buy my products, some of them purchase and sometimes they request for my mobile contact for further communication in case they need to buy my products once again; it is by that means we start business interactions…*" Other circumstances are such as, a trader referring his/her fellow trader to potential customers or the customer referring the street trader to his/her fellow customers and both buyers and sellers meeting in a wholesaler's office.

4.2 Challenges of Street Trader-Customer Interaction Using Mobile Devices (RQ_2)

Customers and street traders shared some challenges in their interactions but also had some unique challenges too, as summarized in Table 1.

Table 1. Challenges facing street traders and customers

Category of challenge	**Challenges faced by street traders and customers**		**Unique challenges faced by each group**	
	Street traders	Customers	Street traders	Customers
Financial	Costs of voucher, bundle, handset, and transaction	Costs of voucher, bundle, handset and transaction	Transport costs	_____
Technical	Mobile network problems, and short mobile internet bundle validity	Mobile network problems, and short mobile internet bundle validity	Mobile phone battery life	Poor quality of product pictures
Social	_____	_____	Lack of reliability among mobile phone interacting customers, customary practices and perceptions, mental stress, misuse of mobile contacts by customers	Lack of business communication transparency, poor customer care

These challenges are sub-divided into three categories which are, financial, technical, and social, each discussed below.

Financial Challenges Facing Street Traders. A number of street traders explained to have faced challenges related to money spending. Such challenges included costs of handset, credit, bundle, transaction, and transport.

Handset costs. Majority of street traders reported that the costs of the handset, especially smartphones, is too high to afford, and therefore it is difficult to justify the purchase of these electronic gadgets. This is connected to the majority being low-income

earners and spending much on basic needs, family, and taxes. One street trader stated *"…I prefer to own a smartphone because it has a lot of up-to-date functions and features which can enable me to communicate thoroughly, the problem is my low income; unless otherwise I have to cut the ratios of some expenditures to acquire it…"*.

Credit, charging and bundle cost. Large number of street traders explained that they incur costs from recharging their mobile phones and also had their bundle run out before the subscribed time. These challenges destabilize the planned communication targets and budgets. Also, smartphone owners reported that the costs of data packages are too high, affecting their daily interactions with customers. One trader revealed *"… Every day I purchase credit and subscribe to a service provider to obtain data package that worth to my money, surprisingly my bundle expires before the time limit, this actually adds extra communication costs…"*.

Transport costs. Many street traders mentioned the costs of travelling, in case a trader is obliged to use public or private transportation to move from one point to another to meet some customers who are not located on the vending route plan. They spend their personal income to attend to some customers while they are not even assured of a sale.

The following representative statement depicts views of participants in the FGD *"… Sometimes we are obliged to travel to meet customers who call or send SMS requesting for our products or services, we pay transport fares which actually is not refunded by the customers …"*.

Transaction costs. A number of street traders reported having used mobile money services for various transactions, including receiving payments from customers. Despite the importance of mobile money, the service costs seem to be a deterrent to street traders. This is because the majority of customers do not top up the withdrawing charges. Others were worried about the security of mobile transactions. One street trader explained *"…Mobile money service is very helpful because it simplifies life, although some customers are not fair, they either send the actual payments without topping up money for withdrawing charges and others may send you fake mobile money messages to escape the payments…"*.

Social Challenges Faced by Street Traders. The social challenges addressed during the study were related to issues such as lack of business communication transparency, fatigue, customs and practices of street trading, misuse of mobile contacts by customers, and poor time management.

Lack of reliability among mobile phone interacting customers: Some participants explained that some customers make calls or send normal SMS or social media messages to street traders, showing interest to buy some products while their real intentions are different. As a result, street traders incur travel costs and fatigue without selling. A newspaper seller said *"…Some customers do call or send SMS and pledge to purchase products, but when you reach the meeting point they change their minds or disappear from the meeting point, therefore a street trader ends up wasting time and getting stressed…"* They reported that some customers have a tendency of calling or texting while their intention is just looking or touching products, known as "Fahari ya macho" (an informal Swahili phrase in Tanzania for viewing, and touching without buying).

Deep-rooted customary practices and perceptions of street trading. Many street traders described that it is not common to initiate customer-seller relationship because of deep-rooted customs and practices regarding street trading on both sides. Many customers are unwilling to give their mobile contacts to street traders because of poor or nonexistent practices on what kinds of messages can be communicated by street traders. Street traders reported that customers may pose many questions to them. This was identified by several respondents who explained *"…It is not our culture to ask customers their mobile contacts after the initial sale because many of them start questioning; it is always a customer who can start asking for mobile contacts…"*

Misuse of mobile contacts by customers. Some female traders reported sexual harassment attempts by some customers through voice calls, SMS, and social media applications. Similarly, some male traders explained to have faced problems whereby female customers tried to lure them for discounts.

Technical Challenges Faced by Street Traders

Mobile network fluctuation. Some traders reported technical challenges, such as network fluctuation or complete absence of network coverage. These had led to dropped calls, signal scrambling, message failure, and high call setup time, leading to ineffective communication between customers and sellers.

Mobile battery life. Mobile phone battery life is also a challenge, especially for those street traders who use smartphones. They explained that they are always on the move trying to find customers and consequently, they do not charge their mobile phones during day times, only during the night. Therefore, they rely on the charged battery for the whole day while many smartphone batteries do not last throughout the work day. Others explained that battery discharges slowly when the battery charge level indicator is high and discharges fast when the charge level indicator is low.

4.2 Challenges Faced by Customers

The study found that some of the challenges facing street traders also face customers in one way or another. Such challenges include the cost of credit, bundles, transactions, and network fluctuations. Other challenges, such as lack of business communication transparency, poor customer care, or poor quality of pictures are unique and mostly affect customers.

Lack of business communication transparency. Majority of customers reported that street traders are not straightforward when they are being requested to deliver products to them. Through voice calls or SMS, they always respond positively confirming to have the requested products while sometimes it is not in their stock. Alternatively, they use this chance to go to wholesalers to look for the products. This process keeps the customers waiting for a long time for product delivery. One customer said "…*Street traders do not tell the truth when you communicate with them to bring products, they will always agree to have those products while they do not have them and therefore you keep waiting for a long time; some of us get despair and withdraw from that business…"*. This implies that street traders do not observe time management.

Poor customer care. A number of customers explained that sometimes street traders do not show concern to customers. Occasionally, they use impolite language mainly when there is misunderstanding related to price negotiations. One customer explained *"…Street traders offer essential services at cheapest costs, however, there are moments they use impolite language and disregard customers due to failure to meet business consensus, they forget that customer care must be shown for all people whether they like their products or not…"*

Poor quality pictures. Majority of customers reported that street traders post unclear product photos or photos of a different product instead of the actual photos of the products they sell. Consequently, customers fail to identify their products well. When customers decide to buy the product after seeing it through social media, it may happen that the product delivered to the customer is very different from the photos shared in social media.

5 Discussion

5.1 Research question (RQ1)

The results show that street traders and customers exchange mobile contacts in different situations. Surprisingly, the study found that in most cases customers initiate the requests to exchange mobile contacts, compared to street traders who rarely do the same. These results are similar with the results by Mramba et al. [27] in which the participants explained that very rare they ask for customers' mobile numbers in order to contact them later, for instance, informing them about new products. Additionally, the reluctance of customers is the main source for street traders' failure to initiate further communication after the initial sale. Customers do not prefer to give their mobile phone numbers to street traders because most of them prefer to keep mobile phones for private communication only. They are also afraid that street traders may interfere, disturb, or violate their privacy. Only those customers who are sure of their communication privacy and have the reasonable volume of interactions are willing to share their contact details. These results are similar with the results by Wahab et al. [28] in Jordan which reports that companies sometimes use customers' information without customers' consent, leading to customers feel their privacy has been violated. This implies that customers can provide mobile contacts themselves but street traders have to know how to handle their customers' contacts responsibly.

5.2 Challenges Faced by Street Traders and Customers During Customer-Seller Interaction Using Mobile Devices (RQ2)

The challenges faced by both street traders and customers are divided into two categories. The first category includes the challenges which negatively affect street traders and customers while the second category are unique challenges specifically affect one group at large compared to the other.

Common Challenges Faced by Street Traders and Customers. These challenges involve cost of handsets, vouchers, bundle, transactions, mobile network problems, and short mobile internet bundle validity.

Cost of handsets, vouchers, bundle, and transactions. The challenges related to money spending mostly affect street traders' financial expenditures. Majority of street traders are low-income earners, marginalized, or very poor compared to customers.

Therefore, the high cost of, for instance, handset typically smartphones, transactions vouchers and bundles is a critical challenge. GSMA [29], reported the cost of a smartphone to range between (TZS 150,000-300,000, or 65.67-135)-although it is believed that the handset quality is determined by the value of money. Similarly, Mothobi & Moshi [30] in ICT Africa (RIA) report showed that 62.5% of Tanzanians do not own smartphones due to financial constraints.

Transaction charges. The transaction charges are high to both street traders and customers for e.g. recently if a customer sends (TZS 100,000 or 43.78$) using TIGOPESA would be charged (TZS 900 or 0.39$) while the receiver of the same amount would be charged (TZS 3550 or 1.55$). The same amount for the customer is charged (TZS 1000 or 0.44$) and (TZS 3600 or 1.58$) for a receiver if both use M-PESA and are registered. The transaction costs are actually a burden to street traders. The results by Mpogole et al. [31] also reported transaction charges for sender and receiver to be high.

Mobile network problems. It is a common challenge facing customers and traders. The results by Mtaho and Ishengoma [32] report that 44.6% of network failure in Dodoma, is caused by limited coverage and network nodes capacity. There is low number of base transceiver stations (BTS) compared to the increasing population. Taking an example of the University of Dodoma, where there are more than 60,000 subscribers, the area has only ten BTS of different telecommunication companies, which is too small to serve the entire population. Nwaobiala & Ubor [33] also report that similar problems limit small scale farmers communicating with other stakeholders in Nigeria.

Bundle expiry and validity. Internet bundle validity has a discrepancy with regards to the expiry date and the service level agreement. This is caused by improper use of the bundle and lack of awareness on the type of use to control and to avoid. Example, there are unnecessary use such as, unknown advertisements, google apps, social chats, and other possible online activities which contribute to rapid bundle expiry. The similar results are reported by Smith and Croxson [34] in Côte D'ivoire and Tanzania.

Lack of business communication transparency. This occurs because there are still ubiquitous viewpoints of doing business as traditionally instead of using technology. It affects negatively other business processes such as, timely delivery of products, timely electronic transaction and business trust. These results are similar to those by Misaki et al. [35], who report the lack of trust and transparency between small scale farmers and buyers, hinder smooth communication using mobile phones.

Unique Challenges Faced by Each Group. These challenges are such as, mobile battery life, travel costs, deep-rooted customs, practices, and perceptions of street trading, poor customer care and poor quality of product pictures.

Mobile battery life. This challenge mostly faces street traders who use smartphones. Smartphones are highly desirable communication gadgets, but are unstable in terms of battery life sustainability. This is due to the design nature with typical battery capacity hardly above 1500 mAh and limited charge voltage of 4.35 ± 0.05V. Therefore, processing power, feature-sets, sensors and social applications have battery life limita-

tions. There are more factors such as user failure to switch-off power consuming interfaces of Bluetooth and Wi-Fi, display brightness, user's battery charging behavior, battery age and other usability practices. It is advised that the users should switch-off unnecessary functions which drain the battery. Rahmati et al. [36] reported switching-off unnecessary applications to have saved power for many mobile users who faced with low battery conditions in U.S.A, China and India.

Deep-rooted customs, practices and perceptions of street trading. When these are combined with poor quality product pictures, as well as pictures of wrong products, the street traders' mobile business practices greatly undermine a sense of trust by customers. These results are similar to the results by Bhanot [37] who shows that 40% of customers using social media to purchase products experienced either wrong pictures or unclear images from sellers.

Poor customer care. The main cause is the lack of mobile business etiquette and poor time management by street traders. Customers often felt being treated unfairly for various reasons. Similar results were found by Mramba et al. [27] whose quantitative study showed strong agreement that weak customer care is one of the most serious problems facing street traders (mean 5.69, mode 7- "completely true").

Travel costs. It is a frequently recurring challenge facing street traders because of the market competition among themselves. When a street trader is guaranteed of selling he\she does not hassle the travel costs to meet customers. Street traders' first priority is obtaining the daily bread; other things are optional.

6 Recommendation and Conclusion

6.1 Recommendation

This qualitative study was limited to investigating the contemporary challenges faced by street traders and customers interacting through mobile devices in a geographically small, urban area of Tanzania. The study found a number of challenges faced by both street traders and customers. The results support a number of recommendations. First, the early interactions between street traders and customers through mobile devices should be mutually initiated to create a feeling of equality and mutual trust. This implies that both parties should have the right to ask for mobile contacts, as well as decline sharing their contacts for no explanation needed. Second, stakeholders responsible for regulating mobile communication as well as connection providers should find means to minimize the costs incurred by street traders such as, vouchers, bundles, and transactions similarly to special packages offered to companies and university students. Third, education and awareness campaign to both street traders and customers should be provided to enable them to understand benefits of using mobile communication for business effectively.

6.2 Conclusion

Street traders are one form of informal workers who play an important role in Tanzania's economy. This study aimed at investigating the challenges faced by street traders and customers interacting through mobile devices. The results show that the majority of street traders use mobile devices to communicate with customers. However, both parties face overall or unique challenges in one way or another. Therefore, we call upon various stakeholders to think of the technological innovation which

might support and minimize these challenges in order to help street traders' efforts in this important economic sector.

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