
Understanding Customers Perception of ATM Data Integrity

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Abstract

In spite of the numerous studies exploring customers' perception of their banks, there is limited understanding of customers' perceptions of Automated Teller Machines (ATM) data integrity issues. We therefore sought to understand customers' perception of data integrity issues in ATM using Ghana Commercial Bank as case study. The objective was to understand the extent to which customers' perception of ATM data integrity affect their relationship with the bank. Thus, the main research question is "To what extent is ATM data integrity issues affecting how customers transact business with the bank? The Adenta branch of Ghana Commercial Bank in Accra was used as case study. A Qualitative research approach was adopted given the exploratory nature of this study. Empirical data were gathered using a combination of observations and interviews. The informants were selected via purposive sampling technique. The study has shown that fairness expectation, assured customer delight, well-structured media post and settled perception of customer delight are the major factors that affect customers' perception of ATM data integrity.

Keywords: Customer perception, data integrity, ATM, cognition, internal stimuli, external stimuli, standards, ATM standards (Whetten, 1989).

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1 Introduction

Financial institutions are increasingly adopting innovations in information technology (IT) to improve their business processes and operations, and to broaden their customer reach and the richness of customer experience. This quest for provision of innovative customer service delivery has become an imperative for replacement of old processes. The phenomenon is usually ignited by the quest for data integrity in banking service delivery (Homer, 2002). Like many rational organizations, financial institutions usually seek to provide quality of service to their customers. Various studies have explained what constitute quality service to customers and how service quality could be improved (Swar, 2012; Chopra et al., 2013; Julian et al., 2013). Interestingly, limited attention has been focused on customers' perception of data integrity in Automated Teller Machines (ATM). This study is an attempt to fill such knowledge gap.

Orlikowski (2000) posited that "Technology is not valuable, meaningful or consequential by itself; it only becomes so when people use it" (Orlikowski, 2000). This position has become a foundational principle in IT systems implementation by organizations since businesses risk falling into the trap of Nicholas Carr's (2003) assertion that "IT does not matter" (Carr, 2003). Thus, understanding the relationship between customers' perception of data integrity will enable financial institutions to implement ATMs that provide assurance to customers with respect to data integrity.

Lipowski, 2008 posited that a good research question usually challenges the researcher to see a matter from a new perspective and to learn something new. Following such reasoning, the question that emanates from a review of literature and our interaction with some customers of Adenta branch of Ghana Commercial Bank (GCB) is; "*how does customers' perceptions of ATM data integrity influence their transactional behavior?*" To effectively address the research question, the object of the study is to explain how customers' perceptions of ATM data integrity influence their transactional behavior. The Adenta branch, a major branch of Ghana Commercial Bank (GCB) was used as case study.

2 Background and Context

Ghana Commercial Bank (GCB) which is a state owned bank is one of the largest State owned/commercial banks in Ghana with branches in all the regions in Ghana and strong presence in rural areas (Asabere, Baah and

Odediyah, 2012). The quest to provide real-time banking services led the bank to restructure its customer service delivery systems, automation of its business processes and operations, installation of ATMs across the country, and introduction of mobile banking services. The bank is one of the early adopters of Mastercard and VISA enabled ATMs in Ghana which enable customers to also make deposits. The main goals for the adoption of these ATMs was to ease cash withdrawal, reduce congestions in the banking halls, and provide opportunity for banking transactions during non-banking hours. Congestion at the banking halls continue to increase in spite of the numerous appeals by the bank to its customers to patronize the ATM services.

At the Adentan shopping mall branch of GCB, motivations in form of sanctions and rewards have been implemented as a control measures towards either inviting or compelling certain pattern of actions. These actions are geared towards the use of these ATM services for the delivery of customer satisfaction and to decongest the banking halls. But that is not the case. Sanctions like a charge of GHc 1.00 for walk in customers to make balance enquiry is enforced whereas the use of the ATM for same purpose is free. Withdrawal of an amount of GHc 800.00 and below from one's own account at the counter, attracts a service charge of GHc 1.00 whereas the use of the ATM to withdraw GHc 800.00 and below is free of charge, yet most customers still don't patronize the ATM. Ironically, most of the bank's customers withdraw below the benchmark of GHc 800.00 per day. After brief conversations with some customers of the bank, it was evident that these customers perceived little or no integrity in their use of the digital device – ATM. These customers were afraid of hidden charges, deductions by the system, unapproved manipulation of lodged figures, elimination of query of misunderstood digital transactions, elimination of the traditional system of two-way communication between the tellers and the customer propagating integrity tendencies in the use of IT systems especially ATM.

3 Literature Review

In line with the objectives of this study a review of relevant literature is presented in this section including fundamental concepts that form the basis of this study. Concepts like data, digital data, customer perception, customer perception will be explained. Then in-depth look at how individual customer perception has been affected by data integrity in the utilization of ATM in GCB. Justification of why internal and external customers are considered as individual customers" in the context of this research.

Customers are the reason for organizations' existence. Advancing technological innovations have induced preferred alternative means of granting services to customers. The introduction of ATM, as one of such innovations was to improve customer services and facilitate payment (Muhannad and Ahmed, 2014) either physical cash or digital payment systems. Report abounds that suggests that customers will become increasingly individualistic and sophisticated and at the same time even more controlling in their relationships with the banks (Chopra and Arora, 2013). Hence understanding factors that increasingly tend to influence customers' perception becomes even more unavoidable especially with the growing consideration of advanced technologies to augment banking services to its customers.

Moreover, previously, organizations which include banks focused more on product improvement (Fournier *et al.*, 1998) than on the needs of the customers. However, customers have been faced with some challenges and problems of these technological innovations. Pin cracking, card trapping, skimming attack (Mohammed, 2011; Watry, 2007). These customer issues aroused research in issues of specific technology interventions in banks from customers' perspective (Swar, 2012; Muhannad and Ahmed, 2014; Panda and Das, 2014) in terms of quality of service delivery. This affirms the importance of the customer to organizations. Current marketing paradigms recognize a need for organizations to create value for both internal and external customers. However, pursuing an internal and external customer focus has been argued to be both synergistic and contradictory (Conduit, Matanda and Mavondo, 2014). But for the purpose of intrinsically unearthing the general perception of customers' data integrity in the use of ATMs, a differential treatment of the parameters may render bias to the true nature of the general perceptive orientation when it comes to generalization of the findings subject to the individual customer's perception.

Perception

Perception as a metric in exploring, investigating or understanding independent factors is much explored in financial industry (Conlon and Murray, 1996) to understand corporate responses to complaints. Cooksey (2014) explored customers perception of time in recovery process in Australia; (Hossain and Leo, 2009) unveiled service quality in retail banking in the middle east. Customers perception on preannouncement of application software was explored by (Hoxmeier, 2000) and in other IT related fields by (Jain, Sethi, and Mukherji, 2009). Customer perception to understand, explore or investigate

other parameters in organizational context was discussed by (Hung and Wong, 2007; Jehn and Scott, 2008; Jeng, 2011; Julien and Tsoni, 2013; Kattara, Weheba and El-Said, 2008) and examination of customers perception in relation to other parameters like financial awareness (Angeles and Delhi, 2014).

Perceptive value of an individual is of infinitesimal value Hughes (1999) but an immense parameter in affecting decisions of an individual choice of a specific issue. Since a major aim of the banks is to ensure optimal customer satisfaction as well as customer delight, dependent variable subject to the customer in evaluating, examining and investigating other independent variable is using the degree of perceptive orientation of their customers or prospecting customers. The ATM machine as a major technological innovation in the bank's operations that has induced varied perceptions of its functionality solely in terms of quality of the services it offers (Swar, 2012; Mohammed, 2011; Gyamfi, 2013; Asabere et al., 2012). Therefore, from this research perspective, perception is the embedded belief or thought induced by external or internal factors subject to the customers and this agrees with the assertion by Conlon and Murray (1996) positing perception as a major metric in understanding factors relating to customers.

However, the subjectiveness of the human perceptive capability is quantified using parametric assumptions, which are usually modelled or theorized. For instance, (Amoako, 2012) conceptualized perception from quality service standpoint using tangibles and intangibles of services GCB grants which reflect these subjective factors with respect to the customers. This affirms the experiential artefact instantiations which incorporates these perceptions of users in optimal use of IT artefacts, a shift from the traditional goal centered instantiations of IT artefact (Krueger, 2007).

Customer Perception

With the growing campaign for the extensive use of the ATM services by GCB, Adenta branch, the continuous low patronage could mean customer dissatisfaction due to probably the complaint behavior of the banks (e.g. Bear-den and Teel, 1993; Churchil and Suprenant, 1982; Folkes, 1984; Richins, 1983) which informs customers' perception of optimizing the use of the ATMs. According to Best and Andreason (1997) and Conlon and Murray (1996), customer perception is the first stage of customer complaint life cycle which pivots the essence of customer perception as the crux to understanding parameters as it relates or affects customers.

An understanding of customers' perception with respect to data integrity is crucial, as it would enable GCB to identify and target these less patronizing customers of the ATM services in an effective and efficient manner. Lopes (2000) accounted for a standard view of perceiving the world as representing it by means of the senses where (Krueger, 2007) hinted that several entities are posited – the world, senses, representations and the perceiver which is an embodiment of the others yet independent. In this account, according to Keeley (2002) the senses are avenues for information about physical states of a world that is external nervous system, which provides better accounts compared to Hughes (1999) accounts for the trivial proportion of electromagnetic spectrum that is perceived by humans which is to the negative 35th power. Yet, these human perceived realities carry experiential density that is completely convincing under normal circumstances (Hughes, 1999; Krueger, 2007). Therefore, perception focuses on the transfer of some indication of the physical state of the world into a cognitive state of the perceiver. This enforces sourcing of individualized data stored in the cognitive section of a customer to unveil other independent factors and their reasons for rich understanding of emerging phenomena, hence the customer – “customer perception”.

In addition, certain assumptions underlies the use of perception-based diagnosis (Schneider, Parkington and Buxton, 2012). These assumptions significantly explain from Schneider et al. 2012 standpoint that customers' perception and the ATM Services must be positively related. This assertion justifies (Hossain and Leo, 2009) position that banks that improve greatly in their services to customers will have substantial market edge, which begs the perceptive orientation of bank customers whom are to use the ATM services especially in this peculiar case whereby the optimal use of the services affords a win-win opportunity to the customer as well as the bank.

Data Integrity

Vanstone et al. (1997) defined data integrity as digital data that has not been altered in an unauthorized manner since the time it was created, transmitted, or stored by an authorized source. Hosmer (2002) extended this definition to propose models to prove digital evidence e.g. checksum, one-way hash algorithm, digital signatures. The essence of data integrity was manifested according to (Kaiser, 2009) which reports that even journal articles were sent back for data integrity issues indicating the unmeasurable usefulness of data integrity. Data used in most banks especially the bank of interest, GCB Adentan branch, is continuously computerizing its processes and procedures

within the bank to attain certain objectives like customer satisfaction and customer expectation, hence the continuous integrity of the stored data. Data integrity as established by (Mayernik and Wallis, 2008) possesses not only a technical problem but a social problem but the individualistic perceptive factors were not considered. This gap of data integrity evaluation from customers' perspective is envisaged. Search on google scholar for Data integrity and customer perception yielded virtually no significant results as EBSCOnet and Jstor. Rather design literatures that enforces technical improvement of ICT artefact are mostly underscored (Asabere et al., 2012; Hosmer, 2002; Rocheleau, 2014; Ettredge and Srivastava, 1999).

Integrity is a virtue that the human endeavor seeks to attain and maintain continuously. The importance of continuous data integrity as emphasized in most literature preempts its significance continuously. According to (Song and JaJa, 2009) digital information is, in general very fragile due to many confronting risk it's faced with ranging from hardware and software failures to major technological changes rendering current software and hardwares unusable. For instance, disk drive failures contributed to 400,000 instances of data corruption over a period of 41 months in 1.53 millions of disk drives (Song and JaJa, 2009). Thus, the significance of data integrity is a universal heralded phenomenon of interest as integrity of data is of immense importance. But, empirically, this phenomenon as mostly viewed from the standpoint of the artefact has not greatly impacted from the intended users' perspective in the infusion of the customers' subjective cognitive requirements. This assertion is informed by the statement by a customer of the bank during one of my observational sessions as follows:

"... They think we are not wise enough to know that they intend to make unnecessary deductions from our accounts if we patronize the automated teller machine..."

Continuous observation proved that the customer as quoted earlier was not in isolation of the statement he made. An elderly lady also uttered and I quote:

"... we have used the manual method of transaction since GCB was formed. Why the appeal to change to this system forcefully if there is no ulterior motive behind it to the point that her money has been benchmarked as to how much she can withdraw from the bank's counter..."

Clearly, the bank's management sensitization exercise on some of the electronic banking services including the ATM services before the bank's doors are open to the day's business indicate that there is an appreciation of challenges with customers' patronage of these services especially the ATM services.

3.1 Contextualizing Data Integrity

This research investigates data integrity factors from the customers' perspective. Mayernik and Wallis (2008) technical and social factors relating to data integrity affords the basis for this research systematic extensive study unearthing other social factors as specifically relates to the individual customer. Therefore, data integrity from the customers' perspective would inform a more constructive instantiation of ICT artifact which are used as substitutes for front line employees in the banking industry.

Critically, as customers of these services providing ATM use or hear testimonies about some of the ATM machines, their decision to patronize the service is shaped by these factors. These factors that shape their perception to patronize the services are accounted for by (Swar, 2012) as he stated that the marketing mix of these services goes beyond four P's to include two additional people, physical evidence and the service process. Hence, from Swar's perspective, the optimal patronage of the ATM services greatly depends on the people (who are the customers), physical evidence (data integrity) as well as the processes of service delivery. Thus, the degree of these qualitative customer subjective data relating to data integrity shall enable customer centered and focused ATM service deployment as well as customer centered processes of service delivery. Environmental, personal and behavioral factors can broadly encompass these militating factors.

4 Theoretical Framework

Theorizing is a systematic endeavor of specifying abstract categories and formulating patterns and chains of cause-and-effect relationships, and it is very critical for drawing systematic inferences based on behaviors and perceptions (Adjei, 2015). Theories abound that underpins the perceptive degree of customer and the decision theory is one of such by behavioral decision theory by March and Simon, 2001 which captures very important decision sub constructs Inputs, Task Characteristics, Cognitive Biases, Data Completeness, Individual Differences, Information Processing, literacy. The theory provides for conceptual framing through consideration of the factors

so listed above purely on behavioral grounds. Jones (1989) quoted “*the fact that behavior varies from situation to situation may not necessarily mean that behavior is controlled by situations but rather that the person is construing the situations differently and thus the same set of stimuli may provoke different responses from different people or from the same person at different times.*” Behavioral parameters from Jones’s statement is not the only factor that shape customers perception but “personal” factors and the environment within which the behavior is exhibited may trigger a possible shift in an individual or customers’ perception of an independent cause.

The effect of the tweak in customer perception can impact negatively on the bank when measures are not maintained to ensure customers are personally continuously satisfied. The level of satisfaction may be subjective (Kattara et al., 2008) because different promises may be made to different customers at different times based on different occasions or circumstances. For instance, on one of our observational sessions, a regular weekly customer – a gentleman, stated

“...for me if all the time funds are made available in the ATM, I would not mind the deductions made. However, when you make unexplainable deductions and still force me to wait for reimbursing the ATM with cash, then I rather come during the working hours of the bank and get the amount that’s sufficient for at least a week. I only drive down to use the ATM (if its working and the service is good) when it becomes extremely unavoidable and that’s the only option available”.

4.1 Consideration of Proposals for Operation of an ATM Platform

A formal proposal to establish and operate a switch shall be submitted to the Bank by three or more banks acting alone or in conjunction with a system supplier. Consideration of the proposal shall include but not be limited to the following processes:

- i. Assessment and evaluation of the following:
 - technical feasibility and financial viability of switch,
 - quality of risk management and measurement techniques,
 - existence of fraud and forgery prevention mechanisms,
 - quality of security infrastructure,
 - appropriateness of system rules and regulations.

- ii. Participation in the pilot project;
- iii. Planning and testing of some of the system processes; and
- iv. Any other issues the Bank may consider pertinent to the establishment and operation of the switch or platform.

Thus, from the utterance of the earlier customers quoted above, there is a perceptive appreciation of the traditional system interaction to the technological based system of interaction which tend to trigger these perceptions. The gentleman and all the others quoted cognitively may consider the ATM as an alternative or last resort which clearly indicates an environmental issue as well as belief influence which broadly are classified as personal factors. Therefore, adopting the behavioral decision theory shrinks the research scope to unearth these data integrity perceptions from the customer. A more encompassing theory which captures these factors that could either be environmental, personal or behavioral factors is ideal, hence the social cognitive theory. Social Cognitive theory has been utilized in a number of disciplines due to its dynamic nature as it considers human behavior to constantly change (Kock, 2004). Bandura (1986) applied the theory in analyzing organizational management. The rapid changing technological environment has occasioned that social cognitive theory is a more useful theoretical framework to understand human behavior (Ratten and Ratten, 2007a).

The Social Cognitive Theory and its constructs as indicated in Figure 1 provide a framework for understanding, predicting changes in human behavior. The theory identifies human behavior as an interaction of personal factors, behavior and the environment. According to the theory, the interaction between the *person* and *behavior* involves the person's *thoughts* and *actions*. The interaction between the *person* and *the environment* involves *human beliefs* and *cognitive competencies* that are developed and modified by social influences and structures within the environment. The final interaction is

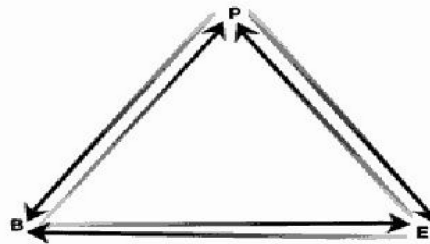


Figure 1 Pictorial representation of Social Cognitive Theory by Bandura (1986).

between *the environment* and *behavior* which involves the *person's behavior* determining the aspects of their environment and in turn their *behavior* is modified by that *environment*.

The teleological interaction as illustrated above provides qualitative basis of inductively researching into the parameters of interest in this research. The continuous interaction between these factors possess enormous task to the research to solicit from individual customers of GCB their perception of the integrity of data regarding the monetary transactions utilizing the ATM.

Consider Table 1 below with a 3×3 matrix for broader perspective of the theoretical constructs that accounts for the iterative relationship between the parameters.

Thus, to make systematic meaning of the relationships in the matrix in Table 1, an enquiry that explains these broad parameters becomes imperative. Hence, the model in this study is based on a model proposed by Sheeshka et al. (1993) of Social cognitive theory and adopted by (Ratten and Ratten, 2007b) to explain in context the parameters of the social cognitive theory. Therefore, using empirical parameters to solicit qualitative data relevant based on practical practices of the individual customer becomes crucial. The adapted social cognitive model, Figure 2 shows that individuals acquire new ideas and knowledge of new practice from their external environment, through the media and observing other people (Bandura, 1986). The internal stimuli are the outcome values, outcome expectancy and self-efficacy that affect and shapes their cognition and behavioral intention (Bandura, 1986). Using the established relationship in adapted model as indicated in Figure 2 provides for in depth investigation as to how and why data integrity from the model's standpoint affects the perception of GCB customers to use GCB

Table 1 Summary of the teleological interaction among the main theoretical constructs of social cognitive theory

	Environmental Factors	Behavioral Factors	Personal Factors
Personal factors	Customer Beliefs, Cognitive Competencies	Customer Thoughts, Customer Actions	None
Behavioral factors	Customer Behavior (Personally)	None	Customer Thoughts, Customer Actions
Environmental factors	None	Customer Behavior (Personally)	Customer Beliefs, Cognitive Competencies

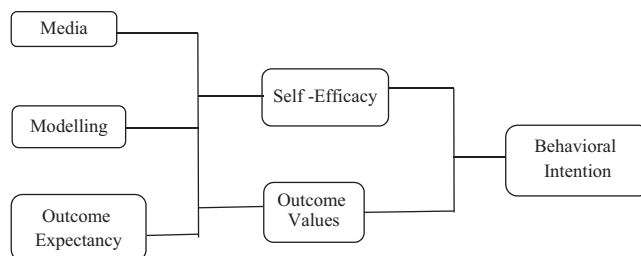


Figure 2 Social Cognitive Theory: Adapted from Sheeshka, Woolcott and Mackinnon (1993) and Ratten and Ratten (2007).

ATM. Though this model as adapted by (Ratten and Ratten, 2007b) to explain from a positivist standpoint youth behavioral intention to use WAP services in the banking services affords same opportunity for thorough qualitative research for this research using the relationships in the model.

Explaining the Constructs

Media: Usually expressed in the form of written or spoken communication as a means of communication to a sample or entire population (Ratten and Ratten, 2007a). Services, products and results can be made more aware to a target group via the media. Thorough use of media affects greatly the decision making process of the target group (Kaufman, 1991). Use of television, radio, Internet and newspapers among other methods are means of utilizing the media for reaching out to an audience. Therefore, the more advertisement on the utilization of GCB ATM that exist in our environment, indicating its benefit and probably indirect rewards like free service charges, the higher the tendency of achieving optimized patronage of the service by GCB customers.

Modeling: Simulating or copying someone else's actions (McCormick and Martinko, 2004). According to (Ratten and Ratten, 2007a), modeling facilitates the cognitive shaping of individual consumers expectation about a product or service. These expectations are usually expressed in behavioral forms which are subject to the customer. These behavioral forms of expectations can be rationalized through customers' pervasiveness to share their consumption habits indirectly with other people and the impact becomes evidently significant on behavioral intention (Herr et al., 1991). Thus, it is possible that seeing others (probably of certain attributed status) use the GCB ATM may subsequently influence others to similarly utilize the ATM services.

Outcome Expectancy: Bandura (1986), explicitly explained outcome expectancy as what outcomes an individual customer believes will happen from doing a certain action. Research abounds that suggest that outcome expectations do influence behavior (Ratten and Ratten, 2007a). Thus, according to the analysis by Bandura (1986), established higher perception of customers' outcome expectancy of utilizing GCB ATM and a higher utilization of the ATM services would mean high individual perception of data integrity in using GCB ATM.

Self-efficacy: Refers to the ability that an individual has to do a certain action (Bandura, 1986). A high level of perceived quality outcome is linked to high perceived self-efficacy (Julien and Tsoni, 2013). Research exist that establishes that self-efficacy has significant influence on perceived ease of use which in turn significantly influence both perceived usefulness and perceived credibility (Mathew, Sulphay and Prabhakaran, 2014). According to (Ratten and Ratten, 2007a), self-efficacy is an antecedent to complex computer task, thus, perceived usefulness of the ATM and a check on the extent of customers' perceived credibility of the ATM data clearly solicit how self-efficient they are in utilizing the ATM.

Outcome values: According to literature, Outcome values are the values an individual customer places on the outcome of an action (Bandura, 1986). (Ratten and Ratten, 2007a), reports that major research in attribution theory presents a description of how individual customers make casual inferences and what consequences arise because of this cognitive activity. Hence, consumers often rely on memory for the generation of alternatives for behavioral consideration and intensity, and as a result place values on certain outcomes (Nedungadi, 1990). Therefore, outcome value is good predictor of customer behavior. Bandura (2001) believes an outcome valuation orientation leads to a consumer or customer forming some criteria or framework to guide in utilizing a product or service.

5 Research Design

Human ability to reason and make inferences from its environment is heavily reliant on its cognitive abilities. These cognitive abilities are subjective because no two people think exactly the same way at any point in time. This rich natural distinction has informed research philosophical paradigms. Given that the role of perceptions in decision making is very subjective, an interpretive approach to examination of customers' perception of data

integrity was deemed appropriate in this study with customers' perception of data integrity forming the unit of analysis.

A qualitative study that aggregates these subjective individual perceptions of customers was deemed appropriate in order to acquire deeper understanding of factors that contribute to perception of data integrity (Alshamaila et al., 2013; Adjei, 2015). A longitudinal analysis of customers' perception of data integrity was conducted from January to December 2016. The customers were interviewed more than once to gain more of their perspective on the independent variable as it affects and shapes their perception. An informal discussion was also held with selected customers to gain deeper understanding of the phenomenon. A purposive sampling technique was used to select the informants because it offers the researcher to select respondents in a way that ensure extensiveness and diversity of individual customer perceptions. This sampling technique also reveals facts about the context such as social clues, opinions, attitudes, beliefs and feelings (Adjei, 2015; Yin, 2008). Gender, educational qualification or social exposure was not a metric considered in the sampling.

The study focused on Case study offers the opportunity for examination of a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities like people, groups or organization (Benbasat et al., 1987). The choice of case study for this research affords the analysis of the phenomenon in its natural settings from individual customers' perspective thereby allowing for systematic identification of factors as it affects individual customers choice of utilizing ATM services. In doing so, the phenomenon is well understood and the seemingly gap in knowledge is attempted to be bridged since more practical explanation to the qualitative data collected is explained. Aggregating the qualitative data as noted from observations and the in depth interviews conducted grants according to Yin (1981, p 61) an accurate interpretation of the qualitative facts, alternative consideration of explanations of the facts, an encompassing conclusion that augments the diverse facts from the qualitative data.

5.1 Type of Evidence

The type of evidence collected for this research is purely qualitative via observations and in-depth interviews using structured interview guide. Qualitative data allows the researcher to be sure of the informant responses by enabling more explanation on their choice of responses. To allow for this provision, the constructs have been factored into questions soliciting informants' opinion

on media, outcome expectancy, outcome values, self-efficacy, modeling and behavioral intention categories of the adopted model based on the social cognitive theory (Bandura, 1991; Sheeshka, Woolcott and MacKinnon, 1993) guiding the interpretation based on proven assumptions of established cause-effect scenarios. Hence the following in this sub section, explains how the interrelationship between the constructs are interpreted. Questions about reports in print and electronic media were asked in order to elicit the extent to which informants' perception are generally shaped by what they hear or read on media whether print or electronic.

In addition, outcome expectancy construct steers informants to give their opinion about what they expect to gain or lose by using the ATM services. In view of that, individual customer's expectation about ATM transactions on their accounts may present issues in forms of opportunities or challenges. When respondents tend to give reason other than data integrity issues related, the questions are further narrowed informally to solicit informants view on their expectation of data integrity. The importance that customers attach to specific outcome expectancy is very crucial in understanding the personal factors. If the value an individual customer places on a specific outcome is high, then it would mean the slightest of tweak in the outcome may affect greatly the general perception which would shape the customer's perceptive state for a longer period.

Self-efficacy as a construct within the adopted model stimulates informants technical and know how skill in the operation of the ATM machine. Here, test for skill set, literacy and past technical experience enhances self-efficacy. If the operability of the ATM is well within the scope of the technical experiential scope of the individual, it then implies possible high tendency to utilize the full services of the ATM by the individual customers under certain conditions. How confident a task is within the scope of an individual affords exploration of other complex or sophisticated task. This reassuring confidence is not stimulated when some environmental factors suffices. For instance, undue delays in resolving account data misconceptions to the customer or total neglect of the customer when such data integrity related issues are filed. This may be an extreme factor considered as a hindrance to individual customers show casing their self-efficacy in operating the ATM. Questions and follow up questions are geared to stimulate these perceptive views of the interviewed customers.

Furthermore, the adopted model for social cognitive theory captures mentorship effects (modeling) to utilize the ATM. This is done by soliciting perceptive views on testimonies of data integrity related challenges; others

the individual customer may consider as mentors have experienced. If these experiences are consciously or unconsciously aired, the effects are indirect shaping of the customers perception. An illustration is a view aired by one of the customers during an observational session at the bank:

“...with my little amount of money with the bank, why should I go for an ATM when my elder brother who is a police officer complained on two occasions that deductions have been made from his account unjustifiably. When he followed up, ambiguous terminologies were used to sway him...”

And he followed up still in the local Ghanaian dialect, Twi to say:

“...my petty amount of money would get deducted and my toil would be nothing for these well fed employees to feed on...”

Confidently, the elder brother to the gentleman did not mean to directly affect the perception of the younger one but he did and that has affected his perception completely about the integrity of continuous data integrity using the ATM. The interview process augments the observational findings by stimulating informants to share personal instances of how these testimonies (if any) has affected them in utilizing the ATM.

Finally, the behavioral intention of the individual customer of the bank is requested. This request is broadly asked in the form “Do you see yourself utilizing the full services of the ATM if the identified data integrity issues are addressed?” The researcher employed interpersonal skills asking why they would use these services if their expectations are met.

Ironically, on the 24th of April, at about 9:04 am, a TV3 live telecast of the show dubbed “New Day” discussed the topic “Evolution of banks: banking in Ghana”. During the programme, the host of the show directed questions regarding her perception of unjustifiable deduction of money made on ATM transactions clearly depicting data integrity issues. This affirms a general perception of ATM users of certain degree of exploitation by the banks on accounts of their individual customers.

6 Discussion of Findings

The instructive nature of informant responses points to issues of consideration in understanding the data integrity perception of individual customers. Recall, Jones (1989) quoted “*the fact that behavior varies from situation to situation*

may not necessarily mean that behavior is controlled by situations but rather that the person is construing the situations differently and thus the same set of stimuli may provoke different responses from different people or from the same person at different times.” For the purpose of in depth understanding, the findings will be discussed in two main categories: External Stimuli and Internal Stimuli (Ratten and Ratten, 2007a).

External Stimuli

Modeling and media constitute external factors that affect the individual customer’s perception of the independent parameter thereby influencing their behavioral intention. Under this sub-subsection, we shall discuss the findings on media and modeling respectively.

Media

From the responses of the informants on media, a clear disconnect of media effect is evident. The attestations of informants alluding to “. . . *never heard...or read...*” affirms this disconnect. In view of the banks persistent effort to sensitize and educate individual customers of sanctions in form of service charges for services the ATM can conveniently handle seems not to have had any effect. A major media method employed by the bank is notice post at vantage points in the banking hall. Since, all those we interviewed agreed to these postings, we argue that the individual customers tend to develop an imbibed cognitively subjective inference by these media sensitization effort interpreted differently.

Thus, these imbibed cognitive subjective inferences by the individual customer is lensed as the state whereby knowledge about a phenomenon is believed by the subject as having been understood based on the signs and symbols of pointers to what is believed is reality. Assuming a post on the wall, detailing steps in handling systematically, data integrity issue relating to the ATM and the benefits of using the ATM is printed, these individual customers especially the five whom have no cards may still not apply for the service. Media disconnect reinforcing settled cognitive perception about data integrity can be understood as the reasons. Consider the common statement by the five respondents who did not have the ATM service card:

“Even they have been saying it at the counter when I go to withdraw my money but the fact is I choose how I want to get my money and not you. . .”

Since those at the counter do not affect these individual customers by way of reinforcing steps in speedy resolution of data integrity issues, their effect is understood as a one-way flow of communication. This therefore means that these individuals intuitively consider the appeal to utilize the ATM as means of exploiting them. These appeals are understood by the customers as counterintuitive to their settled cognitive perception which heralds the general view that people like to be lied to (Jehn and Scott, 2008). The view that "... *I choose how I want to get my money...*" posits a defensive posture by the customers to counter this posture by the bank because preconceived is the belief that the banks exploit by unlawful deductions and charges.

Unlike the researchers' keen interest in understanding data integrity, the media played a role in informing the researcher. Consider the question by the TV3's host of the programme on the day as recorded earlier, the question "... *why the ATM debits her accounts when it fails to dispense funds...*?" on the electronic media, being a morning show, quite a number of viewers may pay little or no attention because the growing settled cognitive perception has metamorphosed as knowledge about the data integrity issues of the ATM services. To illustrate this, consider the responses from all ten informants, there is a common instructive response "*No.*" Now, the interview was conducted around the bank's building where some of these media notices about utilizing the ATM was posted and judging from the fact that they are aware of the bank's effort to dissuade individual customers from queuing at the bank but rather patronize the ATM services, confirms that the media notices to the customers is passive to the socially constructed knowledge about data integrity issues regarding ATM. Therefore, persuasions of diverse forms with rewards accrued may not necessarily neutralize the general view of individual customers.

However, to ensure effective media in compelling individual customers to utilize the service would be to clearly post blue print of resolving data integrity issues relating to the ATM. Consider the phrase "... *I shall consider...*" and "... *take it very serious...*" in the context of responses, signals a doubtful willingness to accept a change but on the contrary is gesture of possible consideration. The media must be channelled to address tendencies of double cognitions which are inconsistent (Jehn and Scott, 2008) and affirm data integrity of the ATM and effective resolution of individual customers data integrity issues relating to the ATM. This ensures critical inculcation of customers perceptions of data integrity in the design and instantiation of the ATM artefact.

Modeling

Unlike the media effect in the context of discussions, the modeling tends to have higher effect in shaping individual customer’s perception about data integrity issues regarding the ATM. Data from the observational sessions pointed to stimulated interest in data integrity issues judged by the word “... really!..” from listening audience to the narrator. Consider the responses reported in Table 2, the relative effect of modeling are evident. The implication is people hear or see from those they share some commonalities, which tend to have higher effect on each other within that environment and context.

The indirect manifestation of models shaped the perception of data integrity related issues of these loyal individual customers of GCB. From all the responses, a careful scrutiny unveils a common instructive sense in their responses denoted by the word “... Yes...” in response to the question which means a tight-coupling between models and perception of data integrity. To the extent that what they perceive from their modeling environment is very crucial in shaping their decision is positioning of the bank to ensure timely resolution of data integrity issues relating to the ATM and general banking services over a period. As observed from the responses and the thoughts expressed by (Hosmer, 2002), consistent improvement in the resolution of these data integrity issues over a period would affect and change the perception of frequent users of the system. Thus, the cognitive inconsistency erstwhile experienced is gradually catered for in the continuous timely resolution of these data integrity issues. By that, the general customer perception is adequately reduced to the barest minimum and instances where it suffices, prompt and unwavering actions are set to ensure maximum customer satisfaction.

Table 2 below summarizes the external stimuli factors:

Table 2 Summary of External stimuli factors on individual perception of data integrity

Themes	Effect on Individual Customer’s Perception of Data Integrity	Individual Perception Requirements
Media	Inconsistent Cognition tendencies, Misplaced perception	Well-structured media post which includes blueprint in resolving data integrity issues speedily and conveniently (Ratten and Ratten, 2007b)
Modeling	Enforcement of subjective reality (belief) indirectly	Settled perception of customer delight when data integrity issues arise

Thus, the environment as discussed plays essential role in re-shaping these customers' perception in that the stimuli from the environment affects gradually the conceived individual cognition regarding data integrity.

In conclusion, the signs and symbols in forms stimuli from the external environment influences the individual customer's perception about the integrity of data utilizing the ATM services in that it has the potential to modify and shape the customer's belief. If these signs or symbols can be manifested in forms of well-structured media post detailing blueprints in resolving these data integrity issues speedily, then the current perception is re-shaped again and cognitive inconsistency as well as the prevailing heralded negative perception is changed. This, according to the findings will lead to high utilization of the services as evidently gathered from the responses during the interview. For example, "*if my pastor who is very popular complains. . .*" is an indication that if the pastor's negative cognition about the integrity of ATM data is changed by ensuring strictly the individual perception requirements, then that of the informants shall surely tend to diminish with time because learning is believed to have taken place (Ratten and Ratten, 2007a).

Internal stimuli

Outcome expectancy, outcome value and self-efficacy constitute the internal factors that affect the individual perception of data integrity issues (Ratten and Ratten, 2007a) in utilizing the full services of the publicized ATM at the GCB, Adenta. Because of this factors discussed in categories of themes are embedded within the imbibed cognition of the individual customer, their effect and manifestation can only be understood effectively if their subjective views are solicited. To comprehend the essence and effect capabilities of these factors, discussion on each based on the findings of the interview would inform inductive approaches in shaping the prevailing notion of data integrity.

Outcome expectancy

Every action an individual takes results in an outcome but the outcome may or may not meet the expectation of the individual carrying out the action. From the reviewed literature, an understanding is established that what an individual expects after carrying out an action is outcome expectancy (Ratten and Ratten, 2007a; Hung and Wong, 2007). Expectation is subjective (Ratten and Ratten, 2007a), therefore, expectation is the subjective metric in measuring outcome of an action which equates to high use of technology. Hence, an

understanding from the responses ranging from “... *transactional data should be accurate always...*”, “... *cash expectations...*”, “... *No wrongful debit of my account when the ATM fails to dispense cash...*” all amounts to fairness expectation of the individual customer from the data integrity of the ATM. The general view of fairness can be understood from (Jehn and Scott, 2008) proposition that “The more harm done by the perceived lie, the more negative the response to the deceit”. The more the current sensitization exercise is done, the more negative these individual customers tend to the perception of deceitfulness of the ATM leading to the settled cognition of data integrity issues.

With fairness of engagement whereby just as individual customers complain about wrongful deductions so should the bank also complain of wrongful crediting enjoyed by these customers which are never the case and should it happen they are quick to correct it. Unethical as the afore assertion may be, if on the contrary, rewards for the patient wait of the customers to rectify these data integrity issues meaning, a parallel loss to the gains of the bank would enforce data integrity of ATM and an assurance of the bank’s effort to ensure customer delight using the ATM.

Outcome value

From Table 3, it is evident that, data integrity is very crucial to the informants as indicated in the following informant’s response; “... *The integrity of data is very important... the integrity of the ATM’s data is not always consistent...*” and cited examples of other services essential that tends to manipulate data for selfish gains thereby exploiting the customer like the fuel dispensing pumps. A clear indication of how much value customers attach to data integrity

Table 3 Summary of Internal stimuli factors on individual perception of data integrity

Themes	Effect of Individual Customer’s Perception of Data Integrity	Individual Perception Requirements
Outcome expectancy	Lack of confidence in the system with respect to data integrity in ATM	Fairness expectation of outcome expectancy (Jehn and Scott, 2008)
Outcome value	Generally, outcome value is less, hence, utilization of the technology is low since literature established direct proportionality between the two (Ratten and Ratten, 2007a)	Sheer responsibility for outcome value neutralizing individual customer’s risk of data integrity issues arising from the patronage of the ATM
Self-efficacy	Procedural gap in resolution of data integrity issues regarding ATM	Assured Customer delight always (Galloway, 1998)

in terms of placing values on outcome relying heavily on memory for the generation of alternatives for behavioral consideration (Ratten and Ratten, 2007a) and intensity.

The value the customers place on data integrity cannot be over emphasized. If the value in terms of the degree of data integrity individual customers gain from utilizing the services is high, then a corresponding intensity in utilizing other related services is achieved. Since the cognitive ability of individual has a high influence on behavioral patterns of an individual, sheer responsibility by the bank to assume punitive responsibility for the short fall in customers' outcome, value of continuous data integrity in using the ATM would re-shape their perception.

Thus, when individual customers begin to nurse perceptions of not going through so much trouble in resolving their data integrity issues resulting from the utilization of the ATM, then a settled cognition at a point would trigger certain behavioral actions of the individual customer to utilize the services. This sheer responsibility neutralizes right or wrongfully conceived risk of utilizing the ATM services.

Self-efficacy

At the inception of this research, a wondering thought of literacy level of individual customers was a factor considered as the reason for the unwillingness of individual customers to use the system, until a customer utter the statement below:

“... They think we are not wise enough to know that they intend to make unnecessary deductions from our accounts if we patronize the automated teller machine...”

Asking, if he is skilled enough to operate the system, the response from the informant was “... *this is nothing at all...*” Then, I understood enough why other technologies like mobile phones are widespread even in the villages in Ghana. Literacy in operating the ATM is absorbed wholly using the media but that is not the case at all as gathered from the observational sessions during the research. The skill set in knowing what to do when data integrity issues occur was rather a very high cause of less patronage of the service. Self-efficacy as explained in the literature explores the requisite skill required to undertake a course of action. The interviews conducted prove that self-efficacy in operating the ATM is not the issue but self-efficacy in quickly addressing the issues that emerge relating to data integrity in utilizing the ATM services is lacking. This gap, defiles the assertion by (Ratten and

Ratten, 2007a), that self-efficacy is an antecedent to task complexity. When individual customers do not know what to do when data integrity issues arise, then cognitive inconsistencies arise which is the reason why the general notion of negative data integrity is ascribed to the ATM. A summary of the effect of internal stimuli factors on individual perception of data integrity is shown in Table 3.

Contributions

Conlon (2002) underscored that contribution could be claimed from research that tend to understanding of a phenomenon by suggesting critical redirection of existing views by offering an entirely new view on the phenomenon of study (Conlon, 2002). Hence, the growing perception of data integrity issues associated with the utilization of the ATM can be broadly attributed to External and Internal stimuli factors.

The External stimuli factors consist of modeling and media factors which have resulted in inconsistent cognition, misplaced perception, and enforcement of subjective reality (belief) indirectly. From the qualitative data and existing literature on individual customer perception the following remedies emerges:

- Well-structured media post detailing blueprint in resolving data integrity issues relating to ATM services speedily and conveniently (Ratten and Ratten, 2007b).
- Settled perception of customer delight when data integrity issues arise.

In addition, the internal environment which comprise the outcome values, expectation outcome and self-efficacy all contribute towards shaping behavioral intention of the cognitive perception of individual customers regarding data integrity issues. The resulting effects are lack of confidence in the system with respect to data integrity in ATM, unbalanced value between outcome value and utilization of the technology and finally procedural gap in resolution of data integrity issues regarding ATM. In resolving these internal environmental issues, based on qualitative evidence and existing literature, the following were proposed:

- (a) Fairness expectation of outcome expectancy (Jehn and Scott, 2008).
- (b) Sheer responsibility for outcome value neutralizing individual customer's risk of data integrity issues arising from the patronage of the ATM.

- (c) Assured customer delight always when ATM data integrity issues arise (Galloway, 1998).

7 Conclusion and Recommendations

The study has scientifically analysed the issues contributing to customers' perception of ATM data integrity and the role of such perceptions on customers' transactional behaviours using Ghana Commercial bank as case study. Understanding data integrity from the functionality of machines is now moving to human perception based data integrity research. The findings from the study explicates what must be done in resolving the issue of investigation. The versatility of the findings and contributions can only hold effectively if prepositions deduced from this study are tested hypothetically. A cross sectional approach in data collection covering broader part of the entire population should authenticate the findings of this research.

Triangulation of the study was initially intended at a selected bank that offers other ATM enabled services such GT bank offering Visa card services. This initial intention was affected by the quality of time spent on observational sessions and an interview conducted to elicit data crucial to the study for informed contribution to knowledge in the emerging IS discipline. However, the study delved much deeper and critically examined subjective perceptions of data integrity issues regarding ATM at GCB, Adenta branch.

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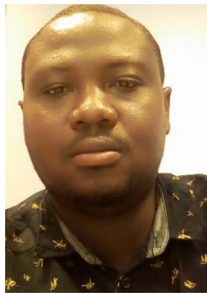
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