UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

ADOPTION OF MOBILE INTERNET AMONG UNIVERSITY STUDENTS IN KENYA.

BY

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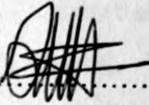
DECLARATION

STUDENT

I, the undersigned, declare that this project is my original work and that it has not been presented in any other university or institution for academic credit.

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ABSTRACT

Mobile Internet has emerged as a tool that is changing the lives of many consumers especially in the developing countries by enabling them to access information. The objective of this research was to determine the extent to which Kenyan university students accept Mobile Internet, to identify the mobile platforms and data plans used, to identify and qualify the constructs that do affect adoption of Mobile Internet and to identify the services accessed by users of mobile internet.

Most research work on Mobile internet adoption is structured on Technology Acceptance Model (TAM). This research however included additional constructs to TAM and attempt to justify their effect on Mobile Internet adoption among university students in Kenya.

The study found that majority of the respondents indicated that they were using ordinary phones and smart phones to access Mobile Internet. The respondents accessed different services on their mobile devices like Social networking, checking the news, accessing research materials and accessing e-mails. Most of the respondents preferred pre-paid data bundles.

The study found that consumer's perceived ease of use had a positive impact on intention to use M-internet. It was also found that perceived usefulness had a positive impact on consumer's intention to use M-internet. The study also revealed that consumer's attitude toward M-internet had a positive impact on his/her intention to use M-internet. Consumer's perception of playfulness was found to have positive impact on intention to use M-internet. Internet experience was also shown to have a positive impact on a consumer's intention to use M-internet. Consumer's perception of service cost was shown to have an impact on intention to use M-internet. System quality was shown to have an impact on a consumer's intention to use M-internet. A consumer's perception of content quality also was shown to have an impact on intention to use M-internet. All these results were consistent with previous studies focusing on TAM framework as well as the studies on the additional Constructs.

The study concluded that Kenyan university students accept mobile internet as a tool to enable them access information and was consistent with previous studies focusing on TAM framework as well as the studies on the studies that included additional Constructs.

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INTRODUCTION

1.1 Background of the study

1.1.1 Mobile Internet

The Mobile internet refers to the use of Internet-connected applications, or browser-based access to the Internet from a mobile device such as a smart phone or tablet pc - connected to a wireless network. The use of new programming paradigms based on mobile entities, such as mobile phones, can accelerate the process of diffusion of new applications and services in the areas of e-commerce, network and systems management, and mobile computing. The mobile device, once considered a luxury, has become the conventional communication tool. The contents that used to deliver limited information are now able to provide a variety of information and services such as e-mail, banking, entertainment and even games. With the rapid increase of the internet usage, the growing penetration of wireless devices, and the rapid technological innovation, wireless technology shifts the world of wired internet to the wireless mobile internet, which is often referred to as M-internet. Mobile internet is expected to deliver great business opportunities to market participants. The key factor of the success is dependent on understanding the concerns of consumers and identifying the determinants that lead to individuals' behavioral intention to adopt mobile internet.

Wireless Internet via mobile devices is leading the world into another spectrum of communication and means of conducting day-to-day business and life activities. Full bloom of wireless Internet services depends on user acceptance, as well as technology improvement. The mobile internet is growing faster and will be bigger than the desktop Internet did due to five converging technologies and social adoption trends: 3G, social networking, video, VoIP and impressive mobile devices, Achterberg (2006). Use of the mobile Internet is driving mobile device growth exponentially faster than any previous computing technology. There are both opportunities and risks as mobile changes infrastructure, platforms and applications. Today, wireless devices are becoming increasingly affordable by the majority of consumers. Mobile phone penetration rate is estimated to be 50 percent across the world and experts have estimated the number of mobile wireless internet users to be 577 million in the year

2008, Journal du net, (2008). Mobile phones could soon rival personal computers as world's dominant internet platform (Wright, 2006).

1.1.2 Mobile internet adoption in Kenya

For a long time, compared to other telecommunication services, internet access has not been very well diffused due to poor infrastructure, overreliance on satellite, low penetration of personal computers as well as lack of local digital content. This is now changing with the landing of fiber optic cable and availability of affordable internet devices as well as smart phones. Safaricom was the first company to introduce 3G services in Kenya in2007 which was commercially rolled out in 2000.Since then, Orange Telecom and Airtel have rolled out their 3G service. 3G is packet-based and therefore has advantages over circuit-switched methods in that it offers faster and more reliable connection and access.

After the introduction of 3G mobile telecommunication service in Kenya, there has been an explosive growth of M-internet which has been supported by improved devices, aggressive marketing of data services by service providers which comes with more flexible and affordable smart phones and tablet computers as well as the growing availability of relevant local digital content. Sixty percent (60%) of Kenya's online users access the internet on their mobile phones, Digital life survey (2010). The study was conducted in several Kenyan urban areas; Nairobi, Mombasa and Kisumu. Eight hundred people were interviewed; 400 online and 400 face-to-face. According to the study, the online development path in Kenya is radically different from many other markets as Kenya has higher mobile penetration compared to other developing markets. In the last two years, internet usage in Kenya went from 9.5% in 2009 to 20% in 2010.

There were 4.2 million internet subscriptions and 12.5 million users in Kenya which puts the internet penetration at 31.8%.98% of the internet market share in Kenya is through mobile platform. The mobile data/internet subscriptions through GPRS/EDGE and 3G continue to dominate internet subscriptions and accounted for 99 per cent of the total subscriptions during the period. It is expected that mobile shall continue to dominate the provision of Internet service as competition in the voice market intensifies compelling operators to diversify into other products and services in order to sustain and grow revenue (CCK, 2011)

The increasing number of M-internet subscribers and the fast growing revenue proves the great potential of M-internet as well as the enormous business opportunity in Kenya. The success in this business is dependent on understanding the concerns of customers and identifying the factors that promote the use of M-internet. Use of Internet and mobile phones leads to positive and negative development outcomes in low income households in Kenya. Households' choices are based on their perceptions of the role that the new technologies play in enhancing their quality of life. Internet access and usage is limited and restricted to urban areas while mobile phone usage is distributed across the country.However, increased use of mobile Internet is expected to change the situation, Ndung'u, and Waema, (2011) .

1.1.3 What are Kenyans doing online?

- Connecting and sharing with others online, uploading pictures to a photo sharing site or internet dating.
- Keeping up to date with current affairs, sports, culture and the weather
- Browsing for things to buy online or offline; e.g. consumer reviews, websites, search engines.
- Email - personal email account. Checking inbox, writing and composing email messages
- Watching video, listening to music or radio streaming or watching on-demand TV programs.
- Sourcing general information and learning, accessing online encyclopedias and self-educating materials.

In Kenya, social networkers (91%) are actively talking about brands in social media. Kenyans engaging with brands are looking for information about them meaning for Kenyan online users, brand building is not just about having a website.

1.2 Statement of the problem

While cell phones and tablet computers with mobile internet capability are shifting from being a luxury item to a necessary commodity, it is becoming evident that mobile internet is becoming increasingly adopted by ordinary consumers. There is however very little research on its adoption in Kenya. There is therefore need to study how mobile internet technology will be diffused over time and across different user groups and to analyze the factors that promote adoption as well as the challenges that hinder the process.

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Despite its success, Mobile Internet access today still suffers from interoperability and usability problems. Interoperability issues stem from the platform fragmentation of mobile devices, mobile operating systems, and browsers. Usability problems are centered on the small physical size of the mobile phone form factors (limited resolution screens and user input/operating limitations) as well as accessibility limitations due to cost issues. With all these considered the critical influencing factors for Mobile Internet adoption in Kenya have not been studied and understood. The available research efforts are focused primarily on general mobile phone adoption as well as mobile commerce and none has focused on adoption of Mobile Internet in Kenya. This research intends to cover that gap.

1.3 Research Objectives

- To determine the extent to which Kenyan university students accept Mobile Internet as a tool to enable them access information.
- To identify the mobile platforms and data plans used by consumers in adopting Mobile internet.
- To establish if system quality, content quality, internet experience, cost and fun do affect adoption of Mobile Internet as an extension of TAM.
- Identify the services accessed by users of mobile internet.

1.4 Research Questions

- What are the technological forces driving mobile internet adoption?
- Does Usefulness positively affect the attitude toward the act of using mobile devices for surfing the Internet?
- Does perceived playfulness positively affect the attitude toward adoption mobile internet?
- Does the opinion on price level affect the decision to adopt Mobile internet?
- Do consumers consider system and content quality as a factor when adopting mobile internet?
- Does ease of use positively affect adoption of mobile devices for surfing the internet?
- Does Fun affect the attitude towards using mobile internet?
- What role does internet experience play in adoption of mobile internet?

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1.5 Research Hypothesis

- H_1. A consumer's perceived ease of use has a positive impact on his/her intention to use M-internet.
- H_1. Perceived usefulness has a positive impact on consumer's intention to use M-internet.
- H_1. A consumer's attitude toward M-internet has a positive impact on his/her intention to use M-internet.
- H_1.A consumer's perception of playfulness has positive impact on his/her intention to use M-internet.
- H. The internet experience has a positive impact on a consumer's intention to use M-internet.
- H_1. A consumer's perception of service cost has an impact on his/her intention to use M-internet.
- H_1. System quality has an impact on a consumer's intention to use M-internet.
- H_1. A consumer's perception of content quality has an impact on his/her intention to use M-internet.

1.6 Importance of the study

Mobile internet services are currently emerging in early-adopter user segments. These services might shake the dynamics of the mobile services industry by introducing different kinds of technical innovation and business logic. This research contributes to the measurement of mobile internet service adoption.

A new research survey shows that 60 per cent of the Kenyans use their handsets compared to 29 per cent who use PCs at home, 33 per cent who use PCs at work or 41 per cent accessing the Internet in cyber cafés. This presents a high potential for growth in the mobile internet business platform in Kenya for telecom services providers and marketers.

Based on this background, this research aims to examine the success factors as well as the challenges underlying the intention to use mobile internet among university students in Kenya and make recommendations that could be useful to researchers as well as the industry.

1.7 General Scope and limitations of the study

The research was centered on the adoption of mobile internet among University students who are considered to be innovators and early adopters. It focused on real users of Mobile internet and not laboratory controlled study. The study would not reach out to the wider public due to limitation of resources but the sample was designed well enough to be representative of Kenyans in general.

CHAPTER TWO:
LITERATURE REVIEW

doption in ICTs

Technology Adoption

rature, the word 'adoption' and 'acceptance' are used interchangeably. If an idea grows
ularity in the same place it originated, that process is called adoption or acceptance
rt. 1953).Information technology adoption is defined as the decision to accept or invest
nology (Dasgupta,et al 2002).Transfer or diffusion appears to be the initial stage that
before the adoption or acceptance stage. Technology is first transferred to users
ed) and then the users decide to accept or adopt that technology.

Mobile internet adoption

e scale deployment of third generation (3G) mobile networks is now taking place. To
ck the investments made in network and service infrastructure, new end-user services
be developed, distributed and adopted. To obtain widespread adoption of these
n, a set of requirement should be met. These requirements are technological, business
ic and behavioral, Pedersen P.E. (2001). At first, complex services require an
tion of network technologies, content and supplementary services. Secondly, adoption
demand side requires widespread adoption of technology-and service platforms among
tion developers and service providers. Finally, end- users implicitly specify a set of
d-side requirements that the services should meet. To understand these requirements,
a of the context specific behavior of end-users should be conducted.

tanding the behavioral adoption requirements is important to both researchers and
y players. For researchers, an important issue is how mobile end-user services differ
ditional ICT-services in ways that affect their adoption. With the introduction of 3G
s, a convergence is expected of mobile and traditional Internet based services.
uently, much of what has been learned from studies of the adoption of traditional
services may be relevant to understanding the adoption of future mobile services.
he perspective of industry players, understanding the process by which these services
pted is also important.

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Access and usage of the new technologies is viewed as critical in society today because of the potential opportunities they provide in the world economy described as being knowledge-based and information driven, Duncombe and Boateng (2009). Internet access and usage in Kenya is limited and restricted to urban areas while mobile phone usage is distributed across the country. However, increased use of mobile internet is expected to change the situation. The growth of Internet and mobile phones usage in Kenya has been exponential with the largest growth witnessed from 2007. Internet and mobile phones have become the basic means of communication for most Kenyans regardless of their economic status and geographical location. These technologies have increasingly become affordable to the lower strata of the population and used as a mechanism for greater participation of these groups in the development process,(Margaret Nyambura,T.Waema).

2.2 Technology adoption frameworks

The adoption of new technologies has been studied through different theoretical frameworks, which include the Diffusion of Innovation Theory, Rogers(1995), the Theory of Reasoned Action Fishbein and Ajzen, (1975), Technology Acceptance Model,Davis, (1989) among others.

2.2.1Theory of Reasoned Action

The Theory of reasoned action (TRA) was proposed by Fishbein and Ajzen (1975) to explain and predict the people's behavior in a specific situation. TRA is a well-known model in the social psychology domain. According to TRA a person's actual behavior is driven by the intention to perform the behavior. Individual's attitude toward the behavior and subjective norms are the 'loading factors' toward behavioral intention. Attitude is a person's positive or negative feeling, and tendency towards an idea, behavior. Subjective norm is defined as an individual's perception of whether people important to the individual think the behavior should be performed.

The Theory of reasoned action is a more general theory than TAM, and has been applied to explain behavior beyond the adoption of technology. However, when applied to adoption behavior, the model includes four general concepts - behavioral attitudes, subjective norms, intention to use and actual use. The inclusion of subjective norm represents an important

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addition when compared to TAM. In TRA, subjective norm is composed of the user's perception of how others think she should behave, and her motivation to comply with the expectations of these referents, Fishbein and Ajzen,(1975). TRA has been applied in its original form to explain the adoption of ICT-applications ,Liker and Sindi (1997), but typically TRA is used as a basis for modifying the TAM-model with subjective norm as suggested above, Venkatesh and Morris, (2000).

2.2.2 Theory of Planned Behavior

The theory of planned behavior was proposed as an extension of the theory of reasoned action to account for conditions where individuals do not have complete control over their behavior. Ajzen(1985). However, this theory also included determinants of the behavioral attitude and subjective norm. Models based upon TPB have been applied to the explanation of different types of behavior, but when applied to the adoption of ICT systems or services, the model contains five concepts - behavioral attitudes, subjective norm, behavioral control, intention to use and actual use. The components of behavioral attitude and subjective norm are the same in TPB as in TRA. In addition, the model includes behavioral control as a perceived construct. Perceived behavioral control reflects the internal and external constraints on behavior, and is directly related to both intention to use and actual use. Consequently, actual use is a weighted function of intention to use and perceived behavioral control. TPB has been applied to explain the adoption of such diverse systems as spreadsheets Mathieson(1991), computer resource centers Taylor $Todd(1995), and recently, electronic commerce services Battacherjee(2000). The role of subjective norm in TPB when compared to TAM is however somewhat unclear.

2.2.3 Task Technology fit Model

The Task technology fit model (TTF) (Dishaw & Strong, 1999) claims that the only reason for IT use is if the available to the end user functions fit the user needs and activities. The basic version of TTF has been tested. Actually, the TTF match the demands of a task and the capabilities of the chosen technology. The very early version does not include the 'Actual Tool Use' as an outcome variable, because they didn't focus on behavior. As Goodhue (1995) notice, individual abilities, such as computer literacy and experience become common additions in later versions of TTF.

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The Innovation diffusion theory (IDT) , is another model also grounded in social psychology. Since 1940's the social scientists coin the terms diffusion and diffusion theory (Rogers, 1983). This theory provides a framework with which we can make predictions for the time period that is necessary for a technology to be accepted. Constructs are the characteristics of the new technology, the communication networks and the characteristics of the adopters. We can see innovation diffusion as a set of four basic elements: the innovation, the time, the communication process and the social system. Here, the concept of a new idea is passed from one member of a social system to another. Moore and Benbasat (1991) redefined a number of constructs for use to examine individual technology acceptance such as relative advantage, ease of use, image, compatibility and results demonstrability.

2.2.5 Expectation-Disconfirmation model

Expectation-disconfirmation model (EDT) according to Premkumar & Bhattacherjee (2008) is based on expectation-disconfirmation-satisfaction paradigm. The comparison of initial expectation vs. perceived performance drives to the disconfirmation for the product. After that the customer forms his/her satisfaction level. They used EDT in order to explain changes in beliefs and attitudes toward IT usage.

2.2.6 Unified Theory of Acceptance

Venkatesh et al. (2003), proposed the Unified Theory of Acceptance and Use as a composition of eight prominent models (TRA, TAM, Motivational Model, TPB, Combined TAM-TPB, PC Utilization, IDT and Social Cognitive Theory). The UTAUT model aims to explain user behavioral intentions to use an IS and subsequent usage behavior. According to this theory 4 critical constructs are direct determinants of usage intention and behavior (Venkatesh et. al., 2003). The core constructs are: performance expectancy, effort expectancy, social influence, and facilitating conditions) gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behaviour (Venkatesh et. al., 2003). Subsequent validation of UTAUT in a longitudinal study found it to account for 70% of the variance in usage intention Venkatesh et. al.,(2003).

2.2.7 Pleasure, Arousal and Dominance (PAD) Theory

Based on environmental psychology, Mehrabian and Russell's (1974) theory asserts that all emotional responses to physical and social environments can be captured with three

dimensions of affect: pleasure, arousal, and dominance . The authors argued that any emotional state may be regarded as positions on these three dimensions, that is, the various combinations of pleasure, arousal, and dominance can adequately represent all of the diverse human emotional reactions to environments. These three dimensions define a person's feelings that, in turn, influence behavior.PAD has been mainly employed in marketing research to measure emotional responses to environmental stimuli.

2.2.8 Technology acceptance model

Technology acceptance model (Davis, 1989) TAM, was adapted from the Theory of Reasoned Action –TRA. TAM is the most well-known and widely accepted and cited model in technology adoption. Davis (1989) developed the TAM to explain the computer usage and acceptance of information technology. As Money & Turner (2004) point out, the Institute for Scientific Information Social Science Citation indexed more than 300 journal citations of the initial TAM paper published by Davis, (1989). In adoption research, the Technology Acceptance Model focuses on the attitudinal explanations of intention to use a specific technology or service. It includes five concepts:- os. The model may be applied to explain users' intentions to use Internet services,Lederer et al(2000),Lin &Lu (2000).

The TAM-model has been both extended and modified. A typical extension suggests antecedents and determinants of perceived user friendliness and perceived usefulness. While the determinants of perceived user friendliness are believed to be rather general and have been given much attention the determinants of perceived usefulness are service-dependent and have been given less attention. A second extension is suggested by introducing social determinants of use or intended use. Some have introduced these concepts as determinants of perceived usefulness while others have criticized the model for not incorporating such issues at all . A third extension suggests including behavioral control or user resources as explanatory concepts Mathieson et al(2001).

According to Davis (1993) 'user acceptance is often the pivotal factor determine the success or failure of an information system'. The ter... external variables include all the system design features. These features have a direct influence on perceived usefulness and perceived

ase of use, while attitude toward using has an indirect influence effect to the actual system use. Davis (1993) defines perceived ease of use as "the degree to which an individual believes that using a particular system would be free of physical and mental effort", and perceived usefulness as "the degree to which an individual believes that using a particular system would be enhance his/her job performance. As Davis et al (1989) states, the goal is to provide us with an explanation of the determinants of information systems acceptance. Similar to TRA user beliefs determine the attitude toward using the information system. This attitude drives to intention behavior to use which lead to actual system use. As Taylor and Todd (1995) claims, TAM performs slightly better compared with the Theory of Planned Behavior (TPB).

PB and TRA have both been criticized for not suggesting operational components or determinants of behavioral attitudes, subjective norm, and to some extent, behavioral control. In the original TAM model, "Usefulness" is partly predicted by "Ease of use"; both of them explain "Intention to use" and "Actual use" through "Attitude toward use". Venkatesh et al. (2003) later compared different models and found that performance expectancy, effort expectancy (that may be compared to ease of use), and social pressure are the only direct significant predictors of behavior intention. They investigated the effect of self-efficacy, computer anxiety, and facilitating conditions on the intention to use and the actual use of four technologies in a business context and found that all these effects were not significant. They explained that these effects may be captured by the effects of effort expectancy and performance expectancy.

3 Adopted research framework

TAM has been replicated, tested and applied in most parts of the world. Researchers who have employed it report its robustness and suitability for explaining user's intention to adopt information technology as the main reason for employing it(Dasgupta,et al 2002;Venkatesh and Morris ,(2000)) The TAM is a preferred choice of models when parsimony, research costs and outcomes are considered (Mathieson, 1991). For example, the TAM explains more variance in attitude toward a technology, and a comparable percentage of variance in usage, the Theory of Planned Behavior, Taylor and Todd, 1995). Also, the TAM constructs are

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more amenable to operationalization and empirical testing than are the broad concepts of Rogers' (1995) diffusion of innovations framework.

Despite its success, one of the drawbacks of the TAM is that it does not take into account emotions such as fun as a predictor of both consumers' attitude toward the act of using the new product and their actual behavior (Bagozzi, 2007). Indeed, consumer behavior theory provides evidences that utilitarian motives are not sufficient to explain consumer behavior toward a product (Childers et al., 2001). Additionally, several recent studies called on the inclusion of hedonic motivations among the predictors of technology adoption. There is therefore need to examine the role of hedonic factors which include *fun, internet experience, perceived price level* as well as *system quality* in influencing consumer adoption.

2.3.1 Effect of fun on mobile internet

Bruner and Kumar (2005) reported that fun is positively influenced by ease of use and that it has even a more important effect on the attitude toward the act than usefulness. Curran and Meuter (2007) confirmed this opinion and found that fun is more important than utility when considering the adoption of self-service technologies in the banking context. Hong et al. (2008) tested several mobile usages and came to the conclusion that fun influences the attitude toward the act in the context of using mobile information services and entertainment services. Dabholkar and Bagozzi (2002) also demonstrated that fun can be considered as an antecedent to attitude.

Most of the previous mentioned studies reveal the importance of considering fun as an explanatory variable of consumers' adoption of mobile devices. To further test the relative effect of utilitarian motivation (which represents usefulness) and the hedonic motivation (which represents fun) on the attitude toward the act, the proposed research will follow the model based on previous works by Bruner and Kumar (2005).

2.3.2 The internet experience

At the very first interact with a computer system; people tend to be stressed and embarrassed. However, as they get familiar with the system, they are likely to have spontaneous interaction with the system and this may increase people's perception of playfulness (Hackbarth et al.,

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2003). This positive relationship between the perceived playfulness and system experience is found in many studies (Webster and Martocchio, 1992). In the study of Webster and Martocchio (1992), a strong correlation between computer experience and computer playfulness was found. This relationship was also supported by the study of Hackbarth et al. (2003). As people get more experiences about the system and learn necessary skills, they are likely to develop more favorable perception of its ease of use (Hackbarth et al., 2003). Igbaria et al. (1995) also found that there exist a positive causality between system experience and perceived ease of use. Indeed, people tend to adopt information systems that are compatible to those previously adopted and used (Dearing and Meyer, 1994).

2.3.3 Perceived price level

In the development of behavioral intention, customers compare the benefit from the service to the cost of using the service. If the cost exceeds the benefit, they do not subscribe the service. In the M-internet context, the cost of using M-internet falls into two parts – initial investment for proper device and subscription charge. First, people pay for the device that enables them to connect to the mobile network. Second, they also pay for subscribing the service. It could be fixed monthly charges, per-minute charges, per-packet charges or mixed. In this study, the cost required to purchase the device is not considered. The main concern regarding the cost is to explore the impact of customer's perceived price level about M-internet subscription (usage) charge in the development of the behavioral intention. The behavioral intention of customers is influenced by their valuation of the service, the perceived price level. (Lee, 1999; Zeithaml, 1988). In more recent studies, Liao and Cheung (2001) examined that the price has significant impact in the development of initial willingness to e-shop on the internet. Obviously, the perceived price level is one of utmost critical factors in developing the behavioral intention.

2.3.4 System quality

System quality is especially important in the context of Information Systems because many people become reluctant to use the system when they experience frequent delay in response, frequent disconnection, lack of access, and poor security (Delone and McLean, 1992;Seddon, 1997; Lee, 1999; Lin and Lu, 2000). In the study of DeLone and McLean (1992),the information quality and system quality are found to be important constructs that bring the success of IS.Similarly, Lin and Lu (2000) employed information quality, response time, and

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system accessibility as IS qualities. They argued that these three variables are useful predictors of the perceived ease of use and the perceived usefulness. Since the response time and system accessibility and other factors such as system reliability and security can be understood as the attributes that explain the system quality, the IS quality can be comprehensively identified by system quality and information quality.

On the basis of these findings, this research model employs contents quality and system quality. The concept of perceived contents quality is similar to the information quality and used in the study of DeLone and McLean (1992) and Lin and Lu (2000) because information is often regarded as contents in the context of the internet. In this study, we also expect that the contents quality have positive impact on the perceived playfulness because the better contents can make individuals feel M-internet more enjoyable and playful.

CHAPTER THREE:

RESEARCH DESIGN AND METHODOLOGY

3.1 Research design

The methodology that was adopted was quite different than the previous ones that employed fun in TAM when analyzing mobile internet adoption. In this study, actual users of mobile devices were interviewed. A more comprehensive version of TAM was used to better reflect mobile internet context as proposed by Je Ho Cheong and Myeong-Cheol Park(2005).

The model employed perceived playfulness, contents quality, system quality, internet experience and perceived price level, in addition to perceived usefulness and ease of use and investigated the causal relationships among the constructs used in this revised TAM and identified the direct and indirect causal role of the constructs in developing the use of M-internet.

Figure 3.1: Research model for mobile internet adoption
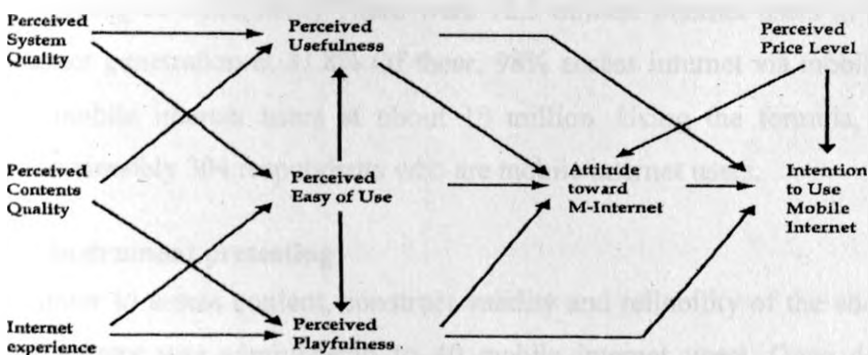
3.2 Sample characteristics

The study was based on a convenience sample. In order to reach the target of respondents, the survey was self-administered and distributed to University students in Kenyatta University, United States International University (USIU) as well as The University of Nairobi. The Sample demographic information was taken considering the age, gender, location for control purposes. A ratio was assigned for undergraduate compared to postgraduate students since there the population of post graduate students is lower. The male-female ratio was 1:1.

3.2.1 Base Sample-size Calculation

The appropriate sample size for a population-based survey was determined largely by three factors: (i) the estimated prevalence of the variable of interest – Mobile internet adoption, (ii) the desired level of confidence and (iii) the acceptable margin of error. For this survey, the sample size required was calculated according to the following formula.

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

Description:

n = required sample size

t = confidence level at 95% (standard value of 1.96)

p = estimated mobile internet users.(figures provided by CCK)

m = margin of error at 5% (standard value of 0.05)

According to CCK(2011) There were 12.5 million internet users in Kenya which puts the internet penetration at 31.8%. Of these, 98% access internet via mobile devices. This places the mobile internet users at about 10 million. Using the formula, the Sample size was approximately 304 respondents who are mobile internet users.

3.3 Instrument pretesting

In order to assess content, construct validity and reliability of the adopted measures, a pre-test survey was administered to 40 mobile internet users. Once data was analyzed, the research instrument was then adjusted accordingly to ensure validity and reliability.

3.4 Survey

Surveys are useful in describing the characteristics of a large population. No other method of observation can provide this general capability. They also provide flexibility at the creation phase in deciding how the question was administered: as face-to-face interviews, by telephone, as group administered written or oral survey, or by electronic means. However, there is a danger of relying on standardization when developing the questionnaire. The questionnaire was designed appropriately for all respondents, without missing what is most appropriate to many respondents. Data was collected by way of a questionnaire which was

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administered to a random population. The research population was randomly selected university students. The reason for choosing this group was because they are mostly the innovators and early adopters. The sample considered the age, gender, physical disability, level of education among others. The quantitative method employed was Technology acceptance model (TAM) as proposed by Davis(1986) so as to determine the perception of users to adopt mobile internet. Questions were modified by changing the name of the technology system tested from an existing pool of TAM research questions to solicit the extent of participants' mobile internet acceptance in the survey.

3.4.1 Questionnaire design

The questionnaire started with questions that identify the type of the device used by the respondents (e.g. PDA, Smartphone, Blackberry, tablet-pc, etc.) and the degree of the respondents' familiarity (i.e. usage experience) with the device. The second section dealt with the purpose of use. For each usage purpose (i.e. sending/receiving e-mails, downloading games, downloading music, watching TV, making online transactions, etc.), respondents had to state their usage rate. Section three measured the extent to which respondents considered the ease, usefulness, fun, internet experience, perceived price level and system quality when using the device. The fourth section measured the attitude of respondents toward the use of mobile devices. Finally, the survey dealt with background information on gender, age, marital status, education level, and occupation/profession. All the items used in this research were adopted from a previous study undertaken by Bruner and Kumar (2005). Questionnaire was preferred because responses are gathered in a standardized way, and so are more objective, certainly more so than interviews.

3.5 Instrument Measurement

The scale items were developed from previously suggested and validated measures in many researches and carefully restated to reflect the characteristics of M-internet. Prior to the study, pilot test of measures was conducted .The wording of items was reviewed and modified based on the pilot test outcomes. In this model, a total of nine constructs were employed and measured by 32 multiple items with a seven-point Likert scale ranging from "Strongly disagree" to "Strongly agree". One advantage of using the TAM is that it has well validated measurement inventory. The scale items were taken from previously suggested and

_____ measures in many researches and restated with care to reflect the characteristics of
__ _____.

The measures of behavioral intention to use, attitude toward using, perceived usefulness and
perceived ease of use were adapted from previous studies related to the TAM, mainly from
the study of Davis (1989). The measures of perceived playfulness were adapted from the
study of Moon and Kim (2001). The measures of perceived system quality and contents
quality were taken from the study of DeLone and McLean (1992) and Lin and Lu (2000).
The measures of the internet experience were taken from the study of Hackbarth et al. (2003)
and Lin and Cheung (2001). At last, the measures of perceived price level were adapted
from the study of Lin and Cheung (2001). To test the hypotheses, Anova test was
conducted.

1.5.1 Instrument validity
Validity refers to the approximate and presumed causal relationship that can be generalized
across the different types of groups of people, settings and times (Cook &Campbell,1979)
Based on TAM, a validity instrument was selected. Cronbach Alpha test was performed in
order to test the average internal consistency of each variable of the scale used(Moore
2004)There was no need to test the TAM model as it has been tried and tested widely as
shown in the literature review.

1.5.2 Instrument reliability
Reliability is the extent to which a particular technique applied repeatedly to the same object
would yield the same result each time (Babbie, 2001). Reliability test was conducted on the
TAM variables using the Cronbach alpha reliability tests consistent with prior psychometric
properties measured on TAM (Venkatesh&Davis, 2000). Questions using Likert-type scales
were also administered. A survey form was processed using the Proc Factor and Proc Corr
procedures of SAS. The quantitative section of this study was tested using the original TAM
model which had 'perceived use' and 'perceived ease of use' as independent variables and
behavioral intention to adopt as the dependent variable.

3.6. Analysis of Data

Descriptive statistics were used to describe the means and the distribution while inferential statistics were used to do collenearity tests for testing the hypothesis. The obtained data from the questionnaires was coded and analyzed to develop descriptive and inferential statistics. Demographic information was used to provide percentages and means to describe characteristics of the population.

CHAPTER FOUR:

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction.

This chapter presents analysis and findings of the research. From the study population target of 300 respondents, 281 respondents filled and returned their questionnaires, constituting 93.7% response rate. Data analysis was done through Statistical Package for Social Scientists (SPSS). Descriptive statistics was used to analyze the data. In the descriptive statistics, relative frequencies were used in some questions and other were analyzed using mean scores with the help of Likert scale ratings in the analysis. Anova test was used to test the research hypothesis of the study.

4.2 General Information.

Figure 4.2: Distribution of respondent by age.
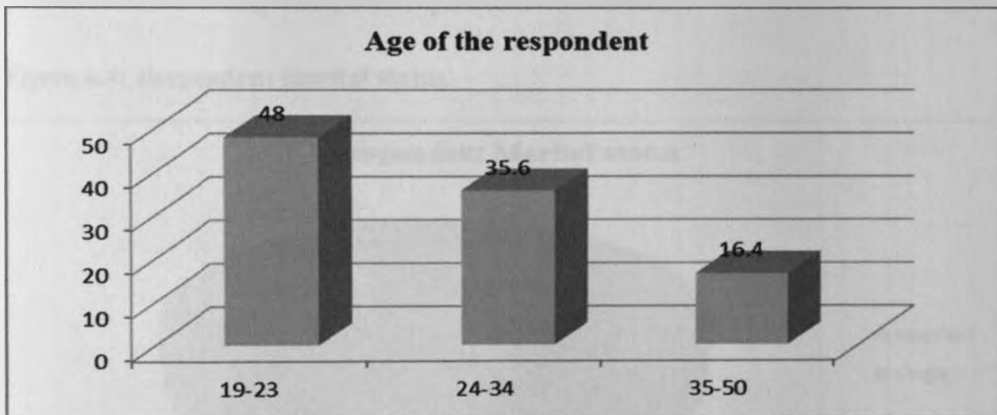
From the finding on the age of the respondent the study found that 48% of the respondent indicated that they were aged between 19 to 23 years , 35.6% of the respondent indicated that they were aged between 24 to 34 years , 16.4% of the respondent indicated that they were aged between 35 to 50 years .

Figure 4.3: Distribution of respondent by gender.
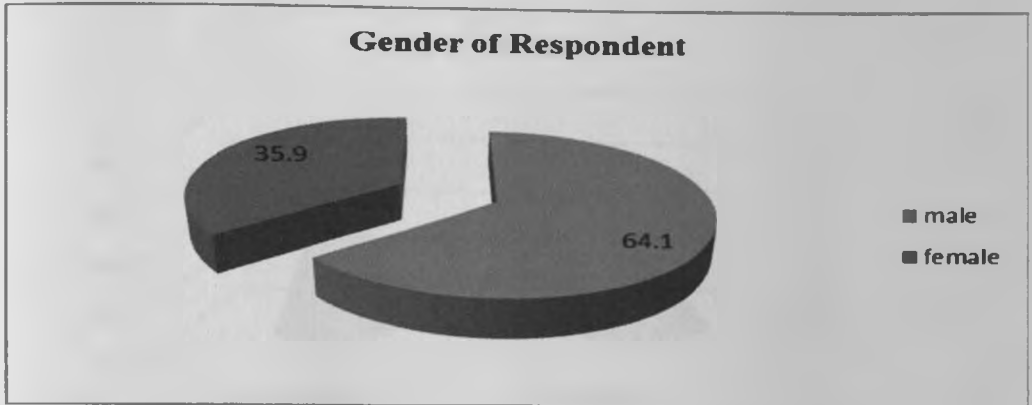
On the gender of the respondent the study found that 64.1% of the respondent indicated that they were males whereas 35.9% of the respondent indicated that they were females, this was an indication that both genders were represented in the study.

Figure 4.4: Respondent marital status.
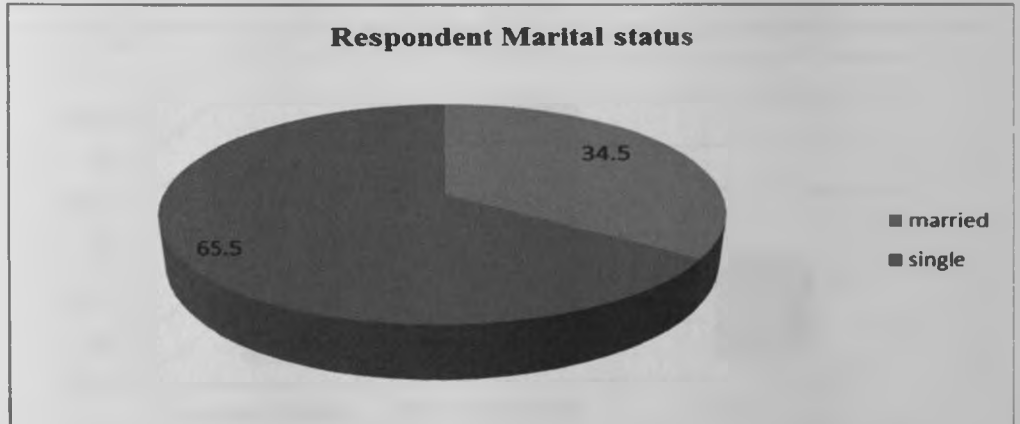
Source, Author (2012)

On the respondent marital status, the study found that majority of the respondent were singles as shown by 65.5% whereas 34.5% of the respondent indicated that they were married .this was an indication that most people accessing mobile internet were student who were not married.

Figure 4.5: Respondent level of education.
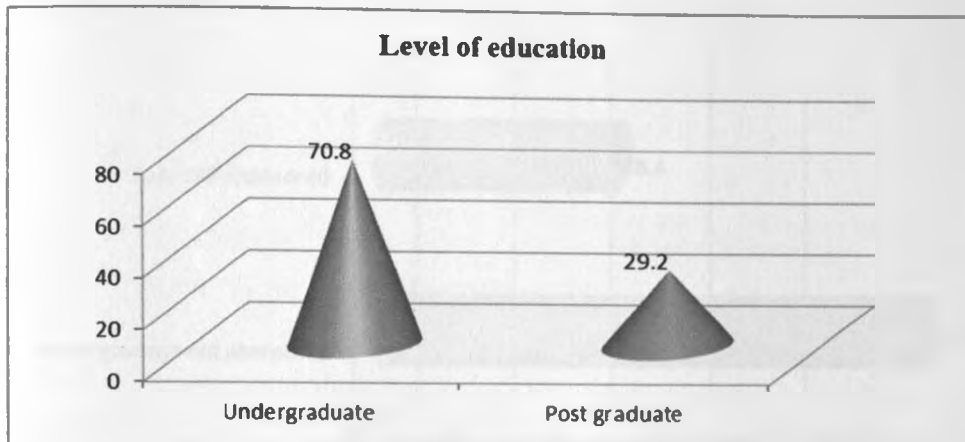
Source, Author (2012)

On the respondent level of the study the study found that majority of the student who were accessing internet using their mobile phone were undergraduates as shown by 70.8% whereas 29.2% of the respondent indicated that they were postgraduate.

Figure 4.6: Distribution of respondent by university.
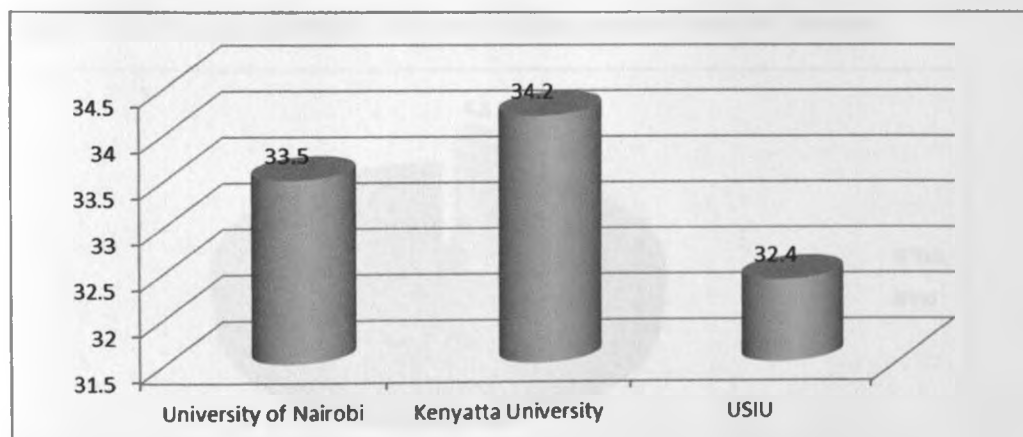
Source, Author (2012)

From the finding on the respondent university which he/she was attending, the study found that 34.2% of the respondent indicated that they were from Kenyatta university, 34.2% of the respondent indicated that they were from university of Nairobi whereas 32.4% of the respondent indicated that they were from USIU.

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Figure 4.7: Sponsoring of university education.
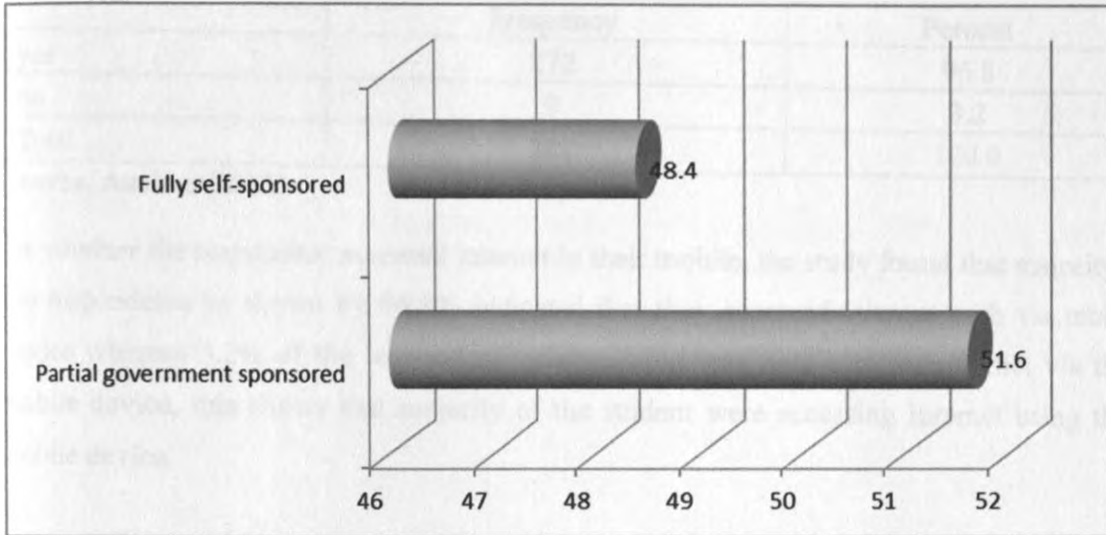
On the person sponsoring respondent university education, the study found that 51.6% of the respondent indicated that they were being partially sponsored by the government whereas 48.4% of the respondent indicated that they were fully self-sponsored.

Figure 4.8: Physical disability that can challenge use of mobile internet.
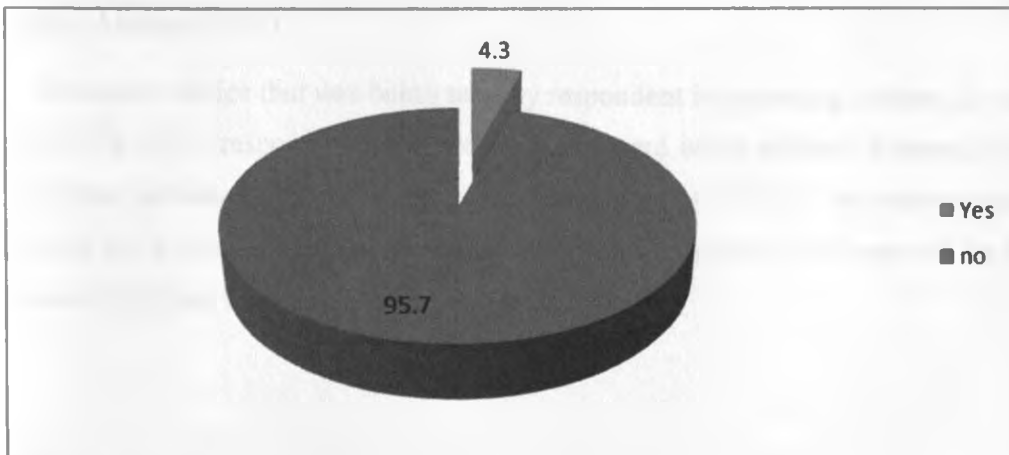
From the findings on whether respondent had physical disability that could challenge their use of mobile internet, the study found that 95.7% of the respondent indicated that they didn't have any disability that challenged their use of mobile internet, whereas 4.3% of the respondent indicated that they had physical disability that challenged their use of mobile internet.

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Table 4.1: Accessing internet on mobile device.

	Frequency	Percent
yes	272	96.8
no	9	3.2
Total	281	100.0

Source, Author (2012)

On whether the respondent accessed internet in their mobile, the study found that majority of the respondents as shown by 96.8% indicated that they accessed internet with via mobile device whereas 3.2% of the respondent indicated that they didn't access internet via their mobile device, this shows that majority of the student were accessing internet using their mobile device.

Table 4.2: Type of device currently used to access the internet.

	Frequency	Percent
Ordinary phone (E.g. Nokia 1200)	138	50.7
Smartphone (E.g.Huawei Ideos)	93	34.2
Blackberry	27	9.9
Tablet computer(E.g. Ipad)	14	5.1
Total	272 .	100.0

Source, Author (2012)

On the mobile device that was being used by respondent in accessing internet the study found that 50.7% of the respondent indicated that they were using ordinary phones, 34.3% of the respondent indicated that they were using smart phones, 9.9% of the respondent indicated that they were using blackberry whereas 5.1% of the respondent indicated of the respondent indicated that they were using tablet computer.

Table 4.3: **Type of operating system running device.**

	Frequency	Percent
Java mobile Edition (ordinary phone)	117	43.0
Symbian (E.g. Nokia N series, E series	38	14.0
Google Android (E.g Huawei Ideos)	74	27.2
Rim (Blackberry)	27	9.9
Ios (E.g. Iphone,Ipad)	12	4.4
Palm Os(E.g. H.P Touch pad)	4	1.5
Total	272	100.0

Source, Author (2012)

From the findings on the operating system used in running the respondent device, the study found that 43% of the respondent indicated Java mobile Edition ,27.2% of the respondent indicated that their phone were using Google Android, 9.9% of the respondent indicated that they were using RIM , whereas those who indicated that they were using palm and Ios were shown by 1.5% in each whereas 14.0% of the respondent indicated that they were using Symbian .

Table 4.4: **Device's input method.**

	Frequency	Percent
Physical keyboard	151	55.5
Touch screen	109	40.1
Physical keyboard/touch screen (both present)	12	4.4
Total	272	100.0

Source, Author (2012)

From the findings on the input method used in the respondent device, the study found that 55.5% of the respondent indicated that their phone was using physical keyboard , 40.1% of the respondent indicated that they use touch screen whereas 4.4% of the respondent indicated that they device were using physical keyboard and touch screen .

Figure 4.9: Browser used access the internet device.
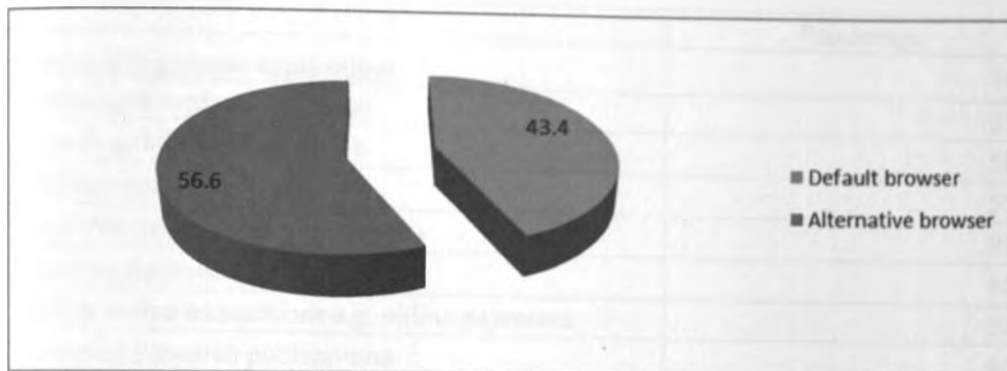
Source, Author (2012)

From the findings on whether respondent prefer the default browser or an alternative browser to access the internet on their device, the study found that 56.4% of the respondent indicated that they were using alternate browser whereas 43.4% of the respondent indicated that they were using default browser .

Table 4.5: Frequency of browsing internet on mobile device.

	Frequency	Percent
Several times in a day	211	77.6
Once a day	12	4.4
Several times in a week	41	15.1
Once in a week	8	2.9
Total	272	100.0

Source, Author (2012)

From the findings on how often the respondent browsed internet on their mobile device, the study found that 77.6% of the respondent indicated that they browse several time in a day, 15.1% of the respondent indicated that they browsed several times in a weeks, 4.4% of the respondent indicated that they were browsing internet on their mobile device several times in a week, whereas 2.9% of the respondent indicated that they browsing once week.

Table 4.6: Use of mobile internet.

	Percentage
Downloading games/applications	36.4
Streaming/downloading videos	33.1
Streaming/downloading music	58.1
Sending/receiving e-mails	55.9
Social Networking (E.g. Facebook)	91.2
Checking the news	60.7
Making online transactions e.g. online payments	52.6
Accessing Research publications	46.7
Accessing Learning resources	59.6

Source, Author (2012)

On the purposes which the respondent uses the mobile internet for, the study found that these were; social networking as shown by 91.2%, checking the news as shown by 60.7%, accessing learning resources as shown by of 59.6%, streaming/downloading music as shown by 58.1%, sending/receiving e-mails as shown by 55.9%, making online transactions e.g. online payments as shown by 52.6%, accessing research publications as shown by 46.7%, downloading games/applications as shown by 36.4% and streaming/downloading videos as shown by 33.1%.

Table 4.7: Mobile service provider used in accessing Mobile internet.

	Frequency	Percent
Airtel	29	10.7
safaricom	204	75.0
Yu mobile	24	8.8
orange	15	5.5
Total	272	100.0

Source, Author (2012)

On the mobile service provider the respondent was subscribed to in accessing Mobile internet, the study found that 75% of the respondent were using Safaricom , 10.7% of the respondent were using Airtel , 8.8% of the respondent were Yu Mobile whereas 5.5% of the respondent were using Orange.

Table 4.8: Description of internet data plan.

	Frequency	Percent
Normal rates(No Subscription)	69	25.4
Postpaid bundle	44	16.2
Prepaid bundle	141	51.8
Access via wifi(Wireless Access)	18	6.6
Total	272	100.0

Source, Author (2012)

On the internet data plan the respondents were subscribed to, the study found that 51.8% of the respondent indicated they were on prepaid data bundles, 25.4% of the respondent indicated using normal rates, 16.2% of the respondent indicated postpaid bundles whereas 6.6% of the respondent indicated they accessed internet using wifi.

Table 4.9: Average internet data consumption per month.

	Frequency	Percent
Below 50Mb	2	.7
51-100Mb	55	20.2
101-250Mb	101	37.1
251-500Mb	107	39.3
Above 1000Mb	7	2.6
Total	272	100.0

Source, Author (2012)

From the finding on the respondent's average internet data consumption per month, the study found that 39.3% of the respondents indicated 251-500Mb, 37.1% of the respondent indicated 101-250Mb, 20.2% of the respondent indicated 51-100Mb, 2.6% of the respondent indicated above 1000Mb whereas 0.7% of the respondent indicated below 50mb .

4.3 Descriptive Analysis

Table 4.10: Usefulness of Mobile Internet.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that M-internet service is very useful to my life in general	84	143	44	1	0	1.8603	.68374
I think that M-internet is helpful to improve my performance in general	75	124	73	0	0	1.9926	.73897
I think that M-internet is helpful to enhance effectiveness of my life in general	61	136	75	0	0	2.0515	.70653
I think that M-internet provides very useful service and information to me	113	144	15	0	0	1.6397	.58484
Use of M-internet made the task I wanted to accomplish easier to get done	89	170	13	0	0	1.7206	.54592
Using M-internet helps me to save time when obtaining information that I need	129	136	7	0	0	1.5515	.54765

Source, Author (2012)

From the respondents level of agreement on Usefulness of mobile internet, the study found that respondents agreed that using M-internet helped them to save time when obtaining information that they needed as shown by mean 1.5515.Resopndents also thought that M-internet provided a very useful service and information to them as shown by mean of 1.6397. Respondents also said that use of M-internet made the task they wanted to accomplish easier to get done as shown 1.7206, and they thought that M-internet service was very useful to their life in general as shown by mean of 1.8603. They also felt that M-internet was helpful to improve their performance in general as shown by mean of 1.9926 and that M-internet was helpful to enhance effectiveness of their life in general as shown by mean of 2.0515.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.046	.080		13.074	.000
	Usefulness of Mobile Internet	.250	.039	.366	6.470	.000

Source, Author (2012)

The established regression equation was

$$Y = 1.046 + 0.250\ X_1$$

From the above regression model holding usefulness of Mobile Internet to a constant zero, adoption of mobile internet would be 1.046, this established that a unit increase usefulness of Mobile Internet would cause an increase adoption of mobile internet by a factor of 0.250. This clearly shows that there is a positive relationship between usefulness of Mobile Internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

Table 4.11: Ease of use of Mobile internet.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that M-internet is easy to use	151	103	18	0	0	1.5110	.61939
I think that learning M-internet is easy to understand	137	90	27	18	0	1.7279	.89250
I think that I can easily find what I want in M- internet	109	115	24	24	0	1.8640	.90909
I think that using M-internet does not require technical skills	40	159	73	0	0	2.1213	.63419

Source, Author (2012)

On the respondent level of agreement on the Ease of use, the study found that respondents agreed that they thought that M-internet was easy to use as shown by mean of 1.5110, they

thought that learning M-internet was easy to understand as shown by mean of 1.7279, they thought that they could easily find what they wanted in M- internet as shown by mean of 1.8640 and they thought that using M-internet did not require technical skills as shown by mean 2.1213.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.366	.115		11.850	.000
	Ease of use of Mobile internet	.248	.054	.268	4.574	.000

Source, Author (2012)

The established regression equation was:

$$Y = 1.366 + 0.248\ X_1$$

From the above regression model, holding Ease of use of mobile internet to a constant zero, adoption of mobile internet would be 1.366, which established that a unit increase Ease of use of mobile internet would cause an increase adoption of mobile internet by a factor of 0.248. This clearly shows that there is a positive relationship between Ease of use of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

Table 4.12: Opinion on pricing of Mobile internet access.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that using M-internet is expensive in overall	89	72	55	56	0	2.7132	3.86947
I think that the price level of using M-internet is a burden to me	31	77	86	69	9	2.8088	1.04521
I think that the price of Mobile Internet limits me from using the service more frequently	57	100	76	39	0	2.3566	.96890

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From the findings opinion on pricing of Mobile internet access, the study found that respondent agreed that they thought that the price of Mobile Internet limited them from using the service more frequently as shown by mean of 2.3566. The respondents were neutral on the thought that using M-internet was expensive in overall as shown by mean 2.7132 and they thought that the price level of using M-internet was a burden to them as shown by a mean of 2.8088.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.988	.125		7.912	.000
	Pricing of Mobile internet	-.618	.069	-.478	-8.930	.000

The established regression equation was:

$$Y = 0.988 + 0.618 X_1$$

From the above regression model holding pricing of mobile internet to a constant zero, adoption of mobile internet would be 0.988, this established that a unit increase pricing of mobile internet would cause a decrease adoption of mobile internet by a factor of 0.618. This clearly shows that there is a positive relationship between pricing of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

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From the findings opinion on pricing of Mobile internet access, the study found that respondent agreed that they thought that the price of Mobile Internet limited them from using the service more frequently as shown by mean of 2.3566.The respondents were neutral on the thought that using M-internet was expensive in overall as shown by mean 2.7132 and they thought that the price level of using M-internet was a burden to them as shown by a mean of 2.8088.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.988	.125		7.912	.000
	Pricing of Mobile internet	-.618	.069	-.478	-8.930	.000

The established regression equation was:

$$Y = 0.988 + 0.618 X_1$$

From the above regression model holding pricing of mobile internet to a constant zero, adoption of mobile internet would be 0.988, this established that a unit increase pricing of mobile internet would cause a decrease adoption of mobile internet by a factor of 0.618. This clearly shows that there is a positive relationship between pricing of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

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Table 4.13: Attitude towards Mobile Internet.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that using M-internet is good idea	187	66	19	0	0	1.3824	.61421
I think that using M-internet is beneficial to me	103	158	11	0	0	1.7022	.67337
I have positive perception about using M-internet	117	120	35	0	0	1.6985	.68532

Source, Author (2012)

From the respondents opinion on Attitude towards mobile internet, the study found that respondents agreed that they thought that using M-internet was a good idea as shown by mean 1.3824.The respondents also agreed that they had positive perception about using M-internet as shown by mean 1.6985 and they thought that using M-internet was beneficial to them as shown by mean of 1.7022.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.241	.085		14.526	.000
	Attitude towards Mobile Internet	.205	.052	.232	3.923	.000

Source, Author (2012)

The established regression equation was:

$Y = 1.241 + 0.205\ X_1$

From the above regression model, holding user's Attitude towards mobile internet to a constant zero, adoption of mobile internet would be 1.241, which established that a unit increase user's Attitude towards mobile internet would cause an increase adoption of mobile internet by a factor of 0.205. This clearly shows that there is a positive relationship between user's attitude towards mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

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Table 4.14: Perceived playfulness/fun

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
When interacting with M-internet, I do not realize the time elapse	143	97	15	17	0	1.6544	.84503
I am not aware of any noise when interacting with M-Internet	90	93	57	15	17	2.1765	1.13893
I feel good when interacting with M-Internet.	86	158	28	0	0	1.7868	.61239
It is fun to use M-internet	149	106	17	0	0	1.5147	.61332

Source, Author (2012)

From the findings on the respondent level of agreement on perceived playfulness/fun, the study found that respondents agreed that it was fun to use M-internet as shown by mean of 1.5147, When interacting with M-internet, they did not realize the time elapse as shown by mean of 1.6544, and they felt good when interacting with M-Internet as shown by mean of 1.7868.They also indicated that they were not aware of any noise when interacting with M-Internet as shown by mean of 2.1765.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.963	.113		8.557	.000
	Perceived playfulness/fun	.410	.054	.418	7.563	.000

Source, Author (2012)

The established regression equation was:

$$Y = 0.963 + 0.410 \, X_1$$

From the above regression model holding Perceived playfulness/fun of mobile internet to a constant zero, adoption of mobile internet would be 0.963, it's established that a unit increase in Perceived playfulness/fun of mobile internet would cause an increase adoption of mobile internet by a factor of 0.410. This clearly shows that there is a positive relationship between perceived playfulness/fun of mobile internet and adoption of mobile internet. The study

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further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

Table 4.15: Perceived system quality

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that mobile internet service is available when I need to use it	150	101	15	6	0	1.5478	.70155
I do not get frequent disconnection when I need to use mobile internet	56	161	40	15	0	2.0515	.75696
I think that the speed of M-internet is fast	89	100	70	13	0	2.0257	.88201
I think that M-internet is secure to use	54	121	84	13	0	2.2059	.81152

Source, Author (2012)

From the findings on the respondent level of agreement on Perceived system quality, the study found that respondents agreed that they thought that mobile internet service was available when they needed to use it as shown by mean 1.5478, they also thought that the speed of M-internet was fast as shown by mean of 2.0257. The respondents added that they did not get frequent disconnection when they needed to use mobile internet as shown by mean 2.0515 and they thought that M-internet was secure to use as shown by mean 2.2059.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.693	.083		20.371	.000
	Perceived system quality	.230	.040	.330	5.735	.000

Source, Author (2012)

The established regression equation was:

$Y = 1.693 + 0.230 X_1$

From the above regression model holding perceived system quality of mobile internet to a constant zero, adoption of mobile internet would be 1.693, it's established that a unit increase in perceived system quality of mobile internet would cause an increase adoption of mobile internet by a factor of 0.230. This clearly shows that there is a positive relationship between perceived system quality of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

Table 4.16: Perceived contents quality.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that M-internet provides various information and services	160	89	23	0	0	1.4963	.64858
I think that the services and information I can get from M-internet is valuable	92	144	36	0	0	1.7941	.65558
M-internet provides the information and service that is current and updated	144	134	24	0	0	1.6691	.63193

Source, Author (2012)

From the findings on the Perceived content quality, the study found that respondents agreed that they thought that M-internet provided various information and services as shown by mean of 1.4963, and that respondents agreed that M-internet provided the information and service that was current and updated as shown by mean 1.6691. They thought that the services and information they could get from M-internet was valuable as shown by mean 1.7941.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.141	.654		.216	.829
	Perceived contents quality	.916	.218	.247	4.194	.000

Source, Author (2012)

The established regression equation was:

Y = 0.141 + 0.916 X1

From the above regression model holding perceived contents quality of mobile internet to a constant zero, adoption of mobile internet would be 0.141, it's established that a unit increase in perceived contents quality of mobile internet would cause an increase adoption of mobile internet by a factor of 0.916. This clearly shows that there is a positive relationship between perceived contents quality of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

Table 4.17: Internet experience.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I think that I am familiar with the M-internet	114	134	24	0	0	1.4926	.50087
I spend many hours using the M-internet	138	134	0	0	0	1.9007	.84679
I frequently use M-internet	94	123	49	6	0	1.9485	.57397

Source, Author (2012)

On respondent Internet experience the study found that respondents agreed that they thought that they were familiar with the M-internet as shown by mean of 1.4926, respondents agreed that they spent many hours using the M-internet as shown by mean of 1.9007 and they frequently used M-internet as shown by mean 1.9485.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.628	.075		34.949	.000

	Internet experience	.067	.016	.247	4.194	.000

Source, Author (2012)

The established regression equation was:

Y = 2.628 + 0.067 X1

From the above regression model holding internet experience of mobile internet to a constant zero, adoption of mobile internet would be 2.628, it's established that a unit increase in internet experience of mobile internet would cause an increase adoption of mobile internet by a factor of 0.067. This clearly shows that there is a positive relationship between internet experience of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

Table 4.18: Intention to use

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Std deviation
I intend to use M-internet	52	182	38	0	0	1.6728	.51501
I intend to use M-internet as much as possible	95	171	6	0	0	1.7941	.65558
I recommend others to use M-internet	83	171	9	9	0	1.7610	.59971

Source, Author (2012)

From the findings on the respondent level of agreement on intention of use, the study found that respondent agreed that they intended to use M-internet as shown by mean of 1.6728, they would recommend others to use M-internet as shown by mean of 1.7610 and that they intended to use M-internet as much as possible as shown by mean 1.7941.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.971	.127		15.467	.000
	Intention to use	.152	.067	.136	2.258	.025

The established regression equation was:

Y = 1.971 + 0.152 X1

From the above regression model holding intention to use of mobile internet to a constant zero, adoption of mobile internet would be 1.971, it's established that a unit increase in Intention to use of mobile internet would cause an increase adoption of mobile internet by a factor of 0.152. This clearly shows that there is a positive relationship between Intention to use of mobile internet and adoption of mobile internet. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that data on the variable were statistically significant and thus in position to make conclusion for the study.

4.4 Hypothesis Testing.

H₁. A consumer's perceived ease of use has a positive impact on his/her intention to use M-internet.

Null hypothesis:

H₀: A consumer's perceived ease of use has a negative impact on his/her intention to use M-internet.

The data on various aspects of consumer's perceived ease of use and his/her intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that A consumer's Perceived ease of use has a negative impact on his/her intention to use M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.748	3	3.916	8.495	.000
Within Groups	123.532	268	.461		
Total	135.279	271			

Critical value from student distribution table which is available online is 1.972

From the results the calculated value was greater than the critical value ($F_o = 8.495 > F_c = 1.972$) This means that there was a significant difference between various aspects of consumer's Perceived ease of use and his/her intention to use M-internet. The hypothesis that a consumer's perceived ease of use has a negative impact on his/her intention to use M-internet was therefore rejected.

H1. Perceived usefulness has a positive impact on consumer's intention to use M-internet.

Null hypothesis:

H0: Perceived usefulness has a negative impact on consumer's intention to use M-internet.

The data on various aspects of Perceived usefulness and consumer's intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that Perceived usefulness has a negative impact on consumer's intention to use M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.968	3	3.989	5.243	.002
Within Groups	203.900	268	.761		
Total	215.868	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 5.243 > F_c = 1.972$) This means that there was a significant difference between various aspects of Perceived usefulness and consumer's intention to use M-internet. The hypothesis that Perceived usefulness has a negative impact on consumer's intention to use M-internet was therefore rejected.

H₁. A consumer's attitude toward M-internet has a positive impact on his/her intention to use M-internet.

Null hypothesis:

H₀: A consumer's attitude toward M-internet has a negative impact on his/her intention to use M-internet.

The data on various aspects of consumer's attitude toward M-internet and his/her intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that A consumer's attitude toward M-internet has a negative impact on his/her intention to use M-internet.. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.905	3	.302	3.800	.495
Within Groups	101.036	268	.377		
Total	101.941	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 3.800 > F_c = 1.972$) This means that there was a significant difference between various aspects of consumer's attitude toward M-internet and his/her intention to use M-internet. The hypothesis that consumer's attitude toward M-internet has a negative impact on his/her intention to use M-internet was therefore rejected.

H₁. A consumer's perception of playfulness has positive impact on his/her intention to use M-internet.

Null hypothesis:

H₀: A consumer's perception of playfulness has negative impact on his/her intention to use M-internet.

The data on various aspects of consumer's perception of playfulness and his/her intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that consumer's perception of playfulness has negative impact on his/her intention to use M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.612	3	.537	4.747	.525
Within Groups	192.708	268	.719		
Total	194.320	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 4.747 > F_c = 1.972$) This means that there was a significant difference between various aspects of consumer's perception of playfulness and his/her intention to use M-internet. The hypothesis that consumer's perception of playfulness has negative impact on his/her intention to use M-internet was therefore rejected.

H₁. The internet experience has positive impact on a consumer's intention to use M-internet.

Null hypothesis:

H₀: A consumer's perception of playfulness has negative impact on his/her intention to use M-internet.

The data on various aspects of internet experience and consumer's intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that internet experience has negative impact on a consumer's intention to use

M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	181.081	3	60.360	4.173	.007
Within Groups	3876.551	268	14.465		
Total	4057.632	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 4.173 > F_c = 1.972$) This means that there was a significant difference between of various aspects of internet experience and consumer's intention to use M-internet. The hypothesis that internet experience has negative impact on a consumer's intention to use M-internet was therefore rejected.

H1. A consumer's perception of service cost has an impact on his/her intention to use M-internet.

Null hypothesis:

Ho: A consumer's perception of service cost does not impact on his/her intention to use M-internet.

The data on various aspects of consumer's perception of service cost and his/her intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that consumer's perception of service cost does not impact on his/her intention to use M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.655	3	4.218	10.256	.000
Within Groups	110.224	268	.411		
Total	122.879	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 10.256 > F_c = 1.972$) This means that there was a significant difference between of various aspects of consumer's perception of service cost and his/her intention to use M-internet. The hypothesis that consumer's perception of service cost does not impact on his/her intention to use M-internet was therefore rejected.

H_1. System quality has an impact on a consumer's intention to use M-internet.
Null hypothesis:
H_0: System quality has no impact on a consumer's intention to use M-internet.
The data on various aspects of System quality and consumer's intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that System quality has no impact on a consumer's intention to use M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.067	3	2.022	2.569	.197
Within Groups	345.462	268	1.289		
Total	351.529	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 2.569 > F_c = 1.972$) This means that there was a significant difference between of various System quality.

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and consumer's intention to use M-internet. The hypothesis that System quality has no impact on a consumer's intention to use M-internet was therefore reject.

H₁. A consumer's perception of content quality has an impact on his/her intention to use M-internet.

Null hypothesis:

H₀: A consumer's perception of content quality has no impact on his/her intention to use M-internet.

The data on various aspects of consumer's perception of content quality and on his/her intention to use M-internet was subjected to Anova test using statistical package for social science to help to test the hypothesis that consumer's perception of content quality has no impact on his/her intention to use M-internet. The calculated values were compared with critical value to establish whether to reject or accept null hypothesis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.714	3	5.905	8.195	.000
Within Groups	193.106	268	.721		
Total	210.820	271			

Source, Author (2012)

Critical value from student distribution table is 1.972

From the results the calculated value was greater than the critical value ($F_o = 8.1995 > F_c = 1.972$). This means that there was a significant difference between of various aspects of consumer's perception of content quality and on his/her intention to use M-internet. The hypothesis that consumer's perception of content quality has no impact on his/her intention to use M-internet was therefore rejected.

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4.5 Analysis of Construct's attributes.

In many scientific fields, variables such as 'service quality' or 'internet experience' cannot be measured directly. Such variables, called latent variables, can be measured by other 'quantifiable' variables (attributes), which reflect the underlying variables of interest. Factor analysis was used to explain the correlations between the observations in terms of the underlying factors, which are not directly observable. The assessment of how well this model was doing was therefore obtained from the communalities. What was expected were values that are close to one (100%). This would indicate that the model explains most of the variation for those attributes.

Table 4.19: Communalities of attributes.

Attribute	Attribute no.	Initial	Extraction
I think that M-internet service is very useful to my life in general.	1	1.000	.857
I think that M-internet is helpful to improve my performance in general.	2	1.000	.750
I think that M-internet is helpful to enhance effectiveness of my life in general.	3	1.000	.830
I think that M-internet provides very useful service and information to me.	4	1.000	.773
Use of M-internet made the task I wanted to accomplish easier to get done.	5	1.000	.826
Using M-internet helps me to save time when obtaining information that I need.	6	1.000	.845
I think that M-internet is easy to use.	7	1.000	.794
I think that learning M-internet is easy to understand.	8	1.000	.794
I think that I can easily find what I want in M- internet.	9	1.000	.758
I think that using M-internet does not require technical skills.	10	1.000	.847
I think that using M-internet is expensive in overall.	11	1.000	.793
I think that the price level of using M-internet is a burden to me.	12	1.000	.668
I think that the price of Mobile Internet limits me from using the service more frequently.	13	1.000	.775
I think that using M-internet is good idea.	14	1.000	.700
I think that using M-internet is beneficial to me.	15	1.000	.780
I have positive perception about using M-internet.	16	1.000	.801
When interacting with M-internet, I do not realize the time elapse.	17	1.000	.812
I am not aware of any noise when interacting with M-Internet.	18	1.000	.809
I feel good when interacting with M-Internet.	19	1.000	.869
It is fun to use M-internet.	20	1.000	.837
I think that mobile internet service is available when I need to use it.	21	1.000	.815
I do not get frequent disconnection when I need to use mobile internet.	22	1.000	.750
I think that the speed of M-internet is fast.	23	1.000	.826
I think that M-internet is secure to use	24	1.000	.844
I think that M-internet provides various information and services.	25	1.000	.716
I think that the services and information I can get from M-internet is valuable.	26	1.000	.730

M-internet provides the information and service that is current and updated.	27	1.000	.774
I think that I am familiar with the M-internet.	28	1.000	.806
I spend many hours using the M-internet	29	1.000	.908
I frequently use M-internet.	30	1.000	.770
I intend to use M-internet.	31	1.000	.852
I intend to use M-internet as much as possible.	32	1.000	.813
I recommend others to use M-internet.	33	1.000	.846

Source, Author (2012)

Each construct is made up of attributes which best define it. The above table helps the researcher to estimate the communalities for each variance. This is the proportion of variance that each attribute has in common with other attributes. For example 'I spend many hours using the M-internet.' has 90.8% communality or shared relationship with other attributes. This value has the greatest communality with others, while 'I think that the price level of using M-internet is a burden to me' has the least communality with others of 66.8%.

The individual communalities tell how well the model is working for the individual attributes, and the total communality gives an overall assessment of performance.

Table 4.20: Attributes Total Variance Explained

Attribute no.	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.504	13.647	13.647	4.504	13.647	13.647
2	3.591	10.881	24.528	3.591	10.881	24.528
3	3.495	10.589	35.118	3.495	10.589	35.118
4	2.821	8.549	43.667	2.821	8.549	43.667
5	2.296	6.958	50.625	2.296	6.958	50.625
6	2.083	6.313	56.938	2.083	6.313	56.938
7	1.892	5.734	62.672	1.892	5.734	62.672
8	1.690	5.121	67.792	1.690	5.121	67.792
9	1.634	4.951	72.743	1.634	4.951	72.743
10	1.222	3.702	76.445	1.222	3.702	76.445
11	1.141	3.457	79.902	1.141	3.457	79.902
12	.985	2.986	82.888			
13	.867	2.626	85.515			
14	.819	2.482	87.997			
15	.610	1.849	89.845			
16	.588	1.782	91.627			
17	.528	1.601	93.228			
18	.423	1.282	94.510			
19	.360	1.090	95.600			
20	.278	.844	96.444			
21	.243	.736	97.180			
22	.220	.666	97.845			
23	.165	.501	98.346			

24	.144	.437	98.783			
25	.117	.353	99.137			
26	.085	.258	99.394			
27	.062	.189	99.584			
28	.046	.139	99.723			
29	.038	.116	99.839			
30	.027	.083	99.922			
31	.014	.041	99.963			
32	.010	.030	99.993			
33	.002	.007	100.000			

Source, Author (2012)

In the above table, the researcher used Kaiser Normalization Criterion, which allows for the extraction of attributes that have an Eigen value greater than 1. The principal component analysis was used and eleven groups of attributes were extracted based on the fact that their Eigen value was equal to or greater than one. As the table shows, these eleven groups explain 79.90% of the total variation. Group 1 contributed the highest variation of 13.647%. The contributions decreased as one moved from group one to the other up to group eleven. This shows that group 1 is the most important combination of attributes that must be included in the research model.

This was important in order to help the researcher to show the relationship among the various constructs since the constructs are not independent as shown in figure 3.1.It also helps to identify which attributes are mandatory in order to define a certain construct and show the relationship of constructs in the model.

Table 4.21: Attributes Component Matrix[a]

Attribute no.	Group										
	1	2	3	4	5	6	7	8	9	10	11
1	-.159	-.106	-.307	.508	.319	.249	-.193	.029	.261	.217	.388
2	.142	-.078	-.046	.659	-.335	-.036	-.327	.206	.128	.071	-.052
3	.380	-.092	-.025	.089	-.428	-.350	.443	-.150	-.245	.290	.012
4	-.019	.015	.361	.626	.025	.325	.272	.190	.036	-.173	.059
5	.128	-.246	.253	.156	-.259	-.274	.163	-.268	-.493	.032	.420
6	.061	-.131	.562	.435	-.171	.484	-.019	-.001	-.127	-.096	.174
7	.287	-.456	.450	-.074	-.033	-.027	.405	.066	.319	-.097	.120
8	.338	-.244	.626	-.191	-.037	.164	-.038	-.038	.400	-.014	-.023
9	.419	-.160	.210	-.502	-.152	.305	.153	.243	.030	-.031	.247
10	.461	-.051	.224	-.273	.193	.379	-.101	-.340	.208	.395	.042
11	.049	.278	-.040	-.071	.211	-.329	.329	-.107	.359	-.364	.416
12	.198	.544	.378	.014	-.232	-.221	-.154	-.210	.110	-.075	-.034
13	-.119	.564	.278	.053	.283	-.171	-.311	-.337	-.018	.048	.201
14	-.379	-.208	.517	.149	.106	-.012	.088	.344	-.175	.191	-.140
15	.050	.348	.642	-.142	.211	-.187	-.022	-.208	-.028	.305	-.083
16	.415	-.017	.601	.284	-.099	-.317	-.144	.087	-.218	.027	.002
17	.436	-.419	.017	-.104	.473	-.325	.072	-.110	.120	-.191	-.195
18	.681	-.302	-.033	.002	.101	-.041	-.089	-.315	.114	-.148	-.315
19	.581	-.129	-.570	-.080	.141	.078	.163	-.158	-.188	.197	.181

20	.486	-.398	.256	.338	.293	.067	-.099	-.101	-.154	-.356	-.044
21	.403	.058	-.040	-.396	.118	.230	-.372	.352	-.265	-.297	-.057
22	.448	.507	-.008	.266	-.357	.114	-.188	-.030	.194	-.082	.006
23	.603	.122	-.193	.429	.201	-.194	-.026	.146	.200	.242	-.168
24	.384	.140	-.566	.397	-.040	.198	.370	-.124	.056	-.022	-.050
25	.356	.065	.017	-.238	.408	.222	-.176	.337	-.285	.218	.199
26	.382	.652	.173	-.193	-.250	.072	-.146	.029	.015	.043	-.013
27	.094	.522	.027	.205	.594	-.019	.000	-.054	-.118	-.161	.230
28	.115	.293	.208	.099	.309	.400	.527	-.002	.012	.271	-.217
29	.792	-.037	-.201	.105	.063	-.189	-.103	.204	-.369	.007	.021
30	.097	.623	-.117	.149	-.085	.346	.174	-.181	-.207	-.206	-.247
31	.064	.603	.107	-.233	.027	-.055	.503	.355	-.122	-.136	-.048
32	.525	.094	-.217	-.244	-.502	.098	-.083	.158	.282	.027	.222
33	.153	.220	.023	.153	.176	-.504	.051	.589	.310	.141	.008

Source, Author (2012)

The above table explains how each of the 33 attributes was placed into 11 groups. This was used in data reduction to identify a small number of attributes that explained most of the variance observed in a much larger number of manifest variables.

Each of the 33 attributes were looked at and placed in one of the 11 extracted groups depending on the percentage of variability which explained the total variability of each group. An attribute is said to belong to a group to which it explains more variation than any other group. For example, attribute 1, 'I think that M-internet service is very useful to my life in general', falls under Group 4 because the highest variance is .508.

From the above table, the individual attributes constituting the eleven groups extracted are summarized and identified below. Group 1 would therefore represent the most important set of attributes and the importance reduces as you move from group 1 to group 11.

Group 1

I think that I can easily find what I want in M- internet.

I think that using M-internet does not require technical skills.

When interacting with M-internet, I do not realize the time elapse.

I am not aware of any noise when interacting with M-Internet.

I feel good when interacting with M-Internet.

It is fun to use M-internet.

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I think that mobile internet service is available when I need to use it.

I think that the speed of M-internet is fast.

I spend many hours using the M-internet

I intend to use M-internet as much as possible.

Group 2

I think that the price level of using M-internet is a burden to me.

I think that the price of Mobile Internet limits me from using the service more frequently.

I do not get frequent disconnection when I need to use mobile internet.

I think that the services and information I can get from M-internet is valuable.

I frequently use M-internet.

I intend to use M-internet.

Group 3

I think that M-internet is easy to use.

I think that learning M-internet is easy to understand.

I think that using M-internet is good idea.

I think that using M-internet is beneficial to me.

I have positive perception about using M-internet.

Group 4

I think that M-internet service is very useful to my life in general.

I think that M-internet is helpful to improve my   performance in general.

I think that M-internet provides very useful service and information to me

I think that M-internet is secure to use

Group 5

I think that M-internet provides various information and services.

M-internet provides the information and service that is current and updated.

I think that M-internet provides various information and services.

Group 6

Using M-internet helps me to save time when obtaining information that I need.

Group 7

I think that M-internet is helpful to enhance effectiveness of my life in general.

I think that I am familiar with the M-internet.

Group 8

I recommend others to use M-internet.

Group 11

Use of M-internet made the task I wanted to accomplish easier to get done.

I think that using M-internet is expensive in overall.

CHAPTER FIVE:
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collected, the following discussions, conclusions and recommendations were made. The responses were based on the objectives of the study. The researcher had intended to determine the extent to which Kenyan university students accept Mobile Internet as a tool to enable them access information, to identify the mobile platforms and data plans used by consumers in adopting Mobile internet, to establish if system quality, content quality, internet experience, cost and fun do affect adoption of Mobile Internet as an extension of TAM and identify the services accessed by users of mobile internet.

5.2 Summary of findings

The study found that majority of the respondents indicated that they were using ordinary phones, while a substantial number were using smart phones. The study found that most of the respondent devices operating system was Java Mobile edition, followed by Google Android, RIM , IOS, and Symbian.The services that most respondents said they accessed on their mobile devices were Social networking, checking the news, accessing research materials and accessing e-mails. Most of the respondents used pre-paid data bundles and accessed Mobile internet several times a day.

From the findings on the usefulness of mobile internet it was revealed that using M-internet helps consumers save time when obtaining information that they need, customer thought that M-internet provided very useful service and information to them, use of M-internet made the task consumers wanted to accomplish easier to get done, consumers thought that M-internet service was very useful to their life in general, and that M-internet was helpful in improving their performance in general. Consumers thought that M-internet was helpful in enhancing effectiveness of their life in general. On the ease of use of mobile internet, it was established that consumers thought that M-internet was easy to use, learning M-internet was easy to understand, and that they could easily find what they wanted in M- internet. They also thought that using M-internet did not require technical skills.

From findings on pricing of Mobile internet access the study found that the price of Mobile

Internet limited them from using the service more frequently, and that using M-internet was expensive in overall. They also thought that the price level of using M-internet was a burden to them. On consumers' attitude towards mobile internet, it was found that consumers thought that using M-internet was a good idea, they had positive perception about using M-internet and they thought that using M-internet was beneficial to them.

From the findings on perceived playfulness/fun of mobile internet , it was found that consumers found it fun to use M-internet and that when interacting with M-internet, consumers did not realize the time elapse, they felt good when interacting with M-Internet and they were not aware of any noise.

On perceived system quality, the study found that consumers thought that mobile internet service was available when they needed to use it, the speed was fast, and they did not get frequent disconnection. The respondents also thought that M-internet was secure to use. On the perceived content quality, the study found that M-internet provided various information and services that was current, updated and valuable.

On internet experience the study found that consumers are familiar with the M-internet, they spent many hours using the M-internet. From the findings on intention of use, the study found that they intended to use M-internet, they would recommend others to use M-internet and that they intended to use M-internet as much as possible.

From the findings on hypothesis testing the study found that consumer's perceived ease of use had a positive impact on intention to use M-internet. It was also found that perceived usefulness has a positive impact on consumer's intention to use M-internet. The study also revealed that consumer's attitude toward M-internet has a positive impact on his/her intention to use M-internet. Consumer's perception of playfulness was found to have positive impact on intention to use M-internet. Internet experience was also shown to have a positive impact on a consumer's intention to use M-internet. Consumer's perception of service cost was shown to have an impact on intention to use M-internet. System quality was shown to have an impact on a consumer's intention to use M-internet. A consumer's perception of content quality also was shown to have an impact on intention to use M-internet. All these results were consistent with previous studies focusing on TAM framework as well as the studies on the additional Constructs.

5.3 Conclusion

From the findings, the study concludes that Kenyan university students accept mobile internet as a tool to enable them access information including social networks, news, accessing research resources, among others . The study also found that they faced minimal challenges in adopting mobile internet.

Consistent with previous studies focusing on TAM framework as well as the studies on the additional Constructs, the study found that major factors that influenced adoption of mobile internet were; usefulness ,perceived ease of use, pricing of mobile internet access, attitude towards mobile internet , perceived playfulness/fun , perceived system quality, perceived contents quality, and internet experience .

From the regression analysis the study found that the following factors positively affects the adoption of mobile internet service among university students these includes; usefulness of mobile internet, ease of use of mobile internet, internet access, attitude towards mobile internet , perceived playfulness/fun , perceived system quality, perceived contents quality, internet experience , intention to use, the study further revealed that pricing of mobile negatively affects the adoption of mobile internet among university students .

5.4 Recommendations

From the findings and conclusion the study recommends that there is need to include the additional constructs of Quality, Fun, Cost and Internet experience to the original TAM as they have a bearing on adoption of Mobile Internet. Furthermore, mobile service providers should consider revising their pricing of mobile internet service as it was found that high cost negatively affect the adoption of mobile internet. The study also recommends that there is need for mobile service providers to focus on quality of service as quality of service positively affects the adoption of mobile internet among users.

5.5 Limitation of Study and Suggestion for Future Research

In the process of conducting research we encountered a number of limitions some of which offer opportunities for future research. The study did not Survey all the university students over a long enough period therefore the results may suffer from internal validity threats . Since the study is solely conducted on university students from three Universities in kenya , the results may suffer from regional biases as these universities are located within Nairobi

City. The results therefore need to be interpreted carefully and repricated in other Universities and countries to improve their relevance.

The results of this study suggest new directions for future research. Researchers in the field of adoption of mobile internet ought to put more emphasis on adoption and assimilation of mobile internet the wider populace of Kenyans. Furthermore an indepth study is required to rationalize the moderating factors.

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APPENDICES

Appendix I: Questionnaire.

Section 1: Questions about the device used to access internet.

(Please select one of the choices by marking with an 'x' on the box next to your choice)

a) Do you access internet on your mobile device (Mobile phone or tablet pc)?

Yes ☐

No ☐

If your answer was 'no', please state your reason...

b) What device do you currently use to access the internet?

Ordinary phone (E.g. Nokia 1200) ☐

Smartphone (E.g.Huawei Ideos) ☐

Blackberry ☐

Tablet computer(E.g. Ipad)☐

b) (i)Please Indicate the brand name of device in use for internet access (*e.g. Nokia*)...

(ii)Please indicate the model of the device in use for internet access (*e.g. Nokia 5800*)...................................

(iii) Which operating system is running in your device?

Java (ordinary phone) ☐

Symbian (E.g. Nokia N series, E series) ☐

Google Android (*E.g Huawei Ideos*) ☐

WebOs ☐

Windows phone (*E.g. Htc HD7*) ☐

Rim (*Blackberry*) ☐

Ios (E.g. *Iphone,Ipad*) ☐

Bada (*E.g Samsung Wave*) ☐

Palm Os(*E.g. H.P Touch pad*) ☐

Not sure ☐

c) What's your device's input method?

Physical keyboard	☐
Touch screen	☐
Physical keyboard/touch screen (*both present*)	☐

d) Do you prefer the default browser or an alternative browser to access the internet on your device?

(*Default browser* refers to the browser that comes preinstalled in the device on purchase, while *Alternative browser* is the one you have installed e.g. Opera mini)

Default browser	☐
Alternative browser	☐

If using alternative browser, please provide name...

Section 2: Information based on your Mobile internet usage

a) How often do you browse the internet on your mobile device?

Several times in a day	☐
Once a day	☐
Several times in a week	☐
Once in a week	☐

b) What purpose(s) do you use mobile internet for?

(*Please select one or more* choices)

Fun:	
Downloading games/applications	☐
Streaming/downloading videos	☐
Streaming/downloading music	☐
Communication:	
Sending/receiving e-mails	☐
Social Networking (E.g. Facebook)	☐
Checking the news	☐
E-commerce:	
Making online transactions e.g. online payments.	☐

Elearning:	
Accessing Research publications	☐
Accessing Learning resources	☐

c) Which mobile service provider are you subscribed to in accessing Mobile internet?

Airtel ☐

Safaricom ☐

Yu mobile ☐

Orange ☐

d) Which of these describes your internet data plan?

Normal rates (*Not subscribed to internet bundles*) ☐

Postpaid bundle (*Pay after use,e.g. Safaricom Postpaid 1000*) ☐

Prepaid bundle (*Have to buy internet bundle or subscribed to e.g.10 Mb. per day*) ☐

Access via wifi (Wireless internet) ☐

e) What is your average internet data consumption per month?

(*E.g. If you are subscribed to 10 Mb. per day you would fall under 251-500Mb per month*)

Below 50Mb ☐

51-100Mb ☐

101-250Mb ☐

251-500Mb ☐

501-1000Mb ☐

Above 1000Mb ☐

Section 3: Your opinion regarding usability of Mobile internet.

(Please indicate the level which you agree/disagree with the following statements based on the following rankings by ticking 1,2,3,4,5 as per ranking:1(Strongly agree), 2(Agree)3 (Neutral), 4(Disagree), 5(Strongly disagree).

1. Usefulness of Mobile Internet (*Your opinion on usefulness of Mobile internet*)

	1.Strongly agree	2.Agree	3.Neutral	4.Disagree	5.Strongly disagree
I think that M-internet service is very useful to my life in general.					
I think that M-internet is helpful to improve my performance in general.					
I think that M-internet is helpful to enhance effectiveness of my life in general.					
I think that M-internet provides very useful service and information to me.					
Use of M-internet made the task I wanted to accomplish easier to get done.					
Using M-internet helps me to save time when obtaining information that I need.					

2. Ease of use of Mobile internet (*Your opinion on how easy or hard it is for you to use Mobile internet*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think that M-internet is easy to use.					
I think that learning M-internet is easy to understand.					
I think that I can easily find what I want in M- internet.					
I think that using M-internet does not require technical skills.					

3. My opinion on pricing of Mobile internet access (*Refers to service cost and not device cost*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think that using M-internet is expensive in overall.					
I think that the price level of using M-internet is a burden to me.					
I think that the price of Mobile Internet limits me from using the service more frequently.					

4. My attitude towards Mobile Internet (*Your overall opinion on Mobile internet as a service*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think that using M-internet is good idea.					
I think that using M-internet is beneficial to me.					
I have positive perception about using M-internet.					

5. Perceived playfulness/fun (*your opinion on whether you derive fun when using Mobile internet*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
When interacting with M-internet, I do not realize the time elapse.					
I am not aware of any noise when interacting with M-Internet.					
I feel good when interacting with M-Internet.					
It is fun to use M-internet.					

6. Perceived system quality (*Your opinion on Mobile internet quality of service*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think that mobile internet service is available when I need to use it.					
I do not get frequent disconnection when I need to use mobile internet.					
I think that the speed of M-internet is fast.					
I think that M-internet is secure to use.					

7. Perceived contents quality (*Your opinion on quality of content accessed via mobile internet E.g.Quality of video, Music*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think that M-internet provides various information and services.					
I think that the services and information I can get from M-internet is valuable.					
M-internet provides the information and service that is current and updated.					

8. Internet experience (*Your opinion on your experience on the use of Mobile internet*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think that I am familiar with the M-internet.					
I spend many hours using the M-internet.					
I frequently use M-internet.					

9. Intention to use (*Your opinion on the likelihood of using Mobile internet to access services*)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I intend to use M-internet.					
I intend to use M-internet as much as possible.					
I recommend others to use M-internet.					

Section 4: Information about you to help us group the data (*Please select one of the choices by marking with an 'x' on the box next to your choice*)

a) Your Age:

Under 18 □

19-23 □

24-34 □

35-50 □

Over 50 . □

b) Your Gender:

Male □

Female □

c) Your marital status:

Married □

Single □

d) What is your occupation? (*E.g. teacher, doctor. This should only be filled by those who are employed /self employed.*)...

e) Please indicate if you are an Undergraduate or a Post graduate student.

Undergraduate □

Post graduate □

f) Please indicate the name of the University you are attending.

University of Nairobi □

Kenyatta University □

USIU □

g) Who is sponsoring your university education?

Partial government sponsored □

Fully self sponsored □

h) Please indicate the course you are currently pursuing in this University (*e.g. Bachelor of Arts in Education.*)..

....

i) Do you have a physical disability that can challenge your use of mobile internet?

Yes ☐

No .

Thank you for participating in this questionnaire.