PERCEIVED USEFULNESS, PERCEIVED EASE OF USE, ATTITUDE AND ACTUAL USAGE OF A NEW FINANCIAL MANAGEMENT SYSTEM: A CASE STUDY OF UGANDA NATIONAL EXAMINATIONS BOARD

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DECLARATION

I declare that the work presented in this dissertation is original and a result of my independent research under the guidance of my supervisors. It has never been submitted to any institution of higher learning for any award or any academic qualification. Where it involves the work of others, due acknowledgement has been made.

Signed: ……………………………

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APPROVAL

This is to certify that this dissertation has been submitted for examination in partial fulfillment of the requirements for the award of a Masters degree of Science in Accounting and Finance with our approval as the University supervisors.

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DEDICATION

I dedicate this work to my beloved husband Godfrey and my blessed children who endured my absence from home during the period of study. May you grow and appreciate the value of education. I cannot forget my cherished parents for the encouragement and support in my education since I started school.

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Special thanks go to my family which has been so encouraging and supportive in all forms during this very long walk. To my husband for his patience and confidence , my parents the best in the world, my siblings, and to my children, Kevin, Lisa, Kenny and Lynette who always gorged me on to push till the end and their constant check ups. To my son Kenny, I have finally "finished my homework".

Let me thank you who is reading this book right now. It is my prayer that you find some value in it. Like the song goes, "Ani yali amanyi". Be blessed.

Regards,

Juliet Bugembe

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LIST OF ACRONYMS

IT	Information Technology
IS	Information Systems
PPDA	Public Procurement and Disposal of Assets
NUSAF	Northern Uganda Social Action Fund
UNRA	Uganda National Roads Authority
UNEB	Uganda National Examinations Board
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
TPB	Theory of Planned Behavior
TTF	Technology Task Fit
IDT	Innovation Diffusion Theory
UTAUT	Unified Theory of Acceptance and Use of Technology

ABSTRACT

The study attempted to examine the effect of system characteristics on user acceptance of computer based information systems. It sought to examine the relationship between perceived usefulness, perceived ease of use, attitude towards using and actual usage of a new financial & information system in Uganda National Examinations Board. A Technology Acceptance Model (TAM) by Davis, F. in 1989 and modified by Anakwe et al, (2000), was used as the conceptual basis for this investigation.

A cross-sectional study design was used in this research. The study population comprised of academic and administrative staff. Proportionate stratified and simple random sampling designs were used to obtain a sample size.

The results reveal that perceived usefulness was the most significant determinant of adoption of a new system, than all the other variables, underscoring the importance of incorporating the appropriate functional capabilities in new systems. The findings affirm that a system will be adopted if it is regarded as useful, irrespective of attitude, provided that the use of the system is perceived to offer direct benefits to the user.

All the relationships that is, between perceived ease of use, perceived usefulness, attitude towards using, and actual usage of the system, were tested and found to be significant and positive. Regression analysis revealed that perceived usefulness was a strong predictor of actual usage as compared to perceived ease of use and attitude towards using the system. It should be noted that factors which influence technology are situation variant. That is to say, what influences technology acceptance in one region or organization may not necessarily be the same in all cases.

CHAPTER ONE: BACKGROUND TO THE STUDY

1.1 Introduction

Information technology acceptance and use is an issue that has received the attention of researchers and practioners for over a decade. This is because Information Technology (IT) usage has risen beyond its traditional role of operational support and now plays a central role in formulating business strategies. Successful investment in technology can lead to enhanced productivity, while failed systems can lead to undesirable consequences such as financial losses and dissatisfaction among employees. Despite significant technological advances and increasing organizational investment in these technologies, the problems of underutilized systems plague businesses (Johansen & Swigart 1996; Moore, 1991; Norman, 1993; Wiener, 1993). Since systems that are not used cannot be effective, no matter what their technical merits, it is important to understand how people decide whether they will use a particular Information System (IS). The issues that influence this decision are likely to vary with the system, the individual and the context.

UNEB acquired a new Financial Management System by Microsoft Dynamics 'SQL' known as 'Solomon'. This system was highly recommended by the providers as 'the best Financial Management System with comprehensive modules that will enhance any organization that acquires it, to improve on its recording, analyzing and reporting requirements, and increase the effectiveness and efficiency of its employees.' However, despite the high recommendations, the usage of this system is not as smooth as would have been expected. The system is

underutilized and not widely used by the staff. This could be because, some do not see the usefulness, and how it will improve their performance at work, or increase the quality of work. Others are not comfortable with it, that is, they do not consider it easy to use. They prefer to use manual tools to accomplish the same tasks, for example, calculators and simple excel formulae, to the complexities of the system. The users regard the system as rigid and inflexible to work with. All this and more influence their attitude towards actually using the system.

For instance, the accountant (personal interview) claimed that, the expected outcome is low because of the complexity of the system. Whereas the Senior Accountant (personal interview) attributes low utilization to individuals who are not that hands on with the computers, which lead them to perceive computers as difficult to use. She also argues that non involvement of staffs in systems implementation contributes to low utilization. The systems administrator, (personal interview) on the hand believes that it is just a matter of time for the department to grasp the Dynamics system. He goes on to state that it will indeed produce the required reports a lot faster, accurately and with ease. He cited a few other companies where this system has been successful like Public Procurement & Disposal of Assets (PPDA) Uganda National Roads Authority (UNRA). The Finance Director believes that this is the best thing that could happen to his work. He will have all the financials produced as soon as he desires, it will be a lot quicker than previously and that he will know the state of affairs of the organization at all times. Whereas he agrees with the senior accountant about the non involvement of staff, he believes that with time and constant practice this Dynamics system will be fully accepted and actually utilized.

Further evidence from the organization's documents show the unsatisfactory status of the system. For instance in a meeting dated 24th October 2008, where it was proposed that the system be enhanced for more effectiveness, these were a few of the outcomes.

"Members reviewed the submission and rejected it because of the following reasons:

1. Members noted that over 120 million shillings was injected in the system but the organization has not realized any output from the package since its inception in 2005.

2. Reports indicate that entities such as PPDA, NUSAF and National Agricultural Research Organization, which have ever used the package found its performance unsatisfactory and consequently abandoned it.

3. Members resolved that the department should first show concrete proof of where this package has been successfully used.

Finally members noted that it would not be prudent to sink another large sum of money on the item without concrete justification".

In this case users may have found the system too difficult to use and have not been able to scale down that hurdle to user acceptance and usage of the new system. UNEB's actual performance gains were the desired outcome from the use of this new information system, the gains will not be obtained if the users fail to adopt the new system. Among other factors that might lead to the system's underutilization, the researcher believes that the technology acceptance model will address why users accept or reject information technology and how user's acceptance is influenced by system characteristics. The current research is also expected to further our understanding of the determinants of system usage and how these perceptions form and change over time with increasing experience with the system.

1.2 Statement of the problem

Uganda National Examinations Board injected over one hundred and twenty million Uganda shillings to purchase a new financial management system to improve on its recording, analyzes and reporting requirements, and to increase the effectiveness and efficiency of its employees. However, there is a general perception that the new information system is under utilized by staff in UNEB, thereby not making significant contribution to the purpose for which it was acquired. This can be evidenced by their reluctance and low utilization of the new system and their preference to their own operational applications. This maybe caused by individual staffs' perceived usefulness, perceived ease of use, or their attitude towards using the system. Apart from a precarious wastage of resources, the low utilization would result in poor performance and inefficiency in the staff and their output.

1.3 Purpose of the study

The purpose of the Study is to examine the relationship between Perceived Usefulness, Perceived Ease of Use, and Attitude towards using the system, with the actual usage of the new Dynamics Information System by UNEB staff.

1.4 Objectives of the study

1. To examine the relationship between Perceived Ease of use and Perceived Usefulness.
2. To examine the relationship between Perceived Usefulness and Attitudes towards using the system.
3. To establish the relationship between Perceived Ease of Use and Attitudes towards using the system.

4. To establish the relationship between Attitudes towards Using the system and Actual use of the system.

1.5 Research questions

1. What is the relationship between Perceived Ease of use and Perceived Usefulness?

2. What is the relationship between Perceived Usefulness and Attitudes towards using the system?

3. What is the relationship between Perceived Ease of Use and Attitudes towards using the system?

4. What is the relationship between Attitudes Towards Using and Actual Use of the system?

1.6 Significance of the study

UNEB considers information computer technology a core value in its operations. However, underutilization of the acquired information system leaves UNEB with a low value output. Therefore, studying the factors that influence UNEB staff to actually use the Dynamics information system, as a measure of acceptance is important.

The study will also help both the policy makers and users gain a better understanding of the key factors driving the diffusion of information and communication technologies. The long term goal of this study is to contribute and improve the design of the policies aimed at fostering the adopting, acceptance and usage of the Dynamics Information system.

The choice of functional and interface characteristics of a new system are largely under the control of information systems designers, developers, selectors and managers. Needed is a model of how such design choices affect user acceptance in the workplace. The study might be a

basis for further research studies by subsequent researchers. Technology Acceptance through usage helps organizations to optimize benefits of acquiring new information systems. Therefore, information computer technology implementing organizations should consider factors that lead to technology acceptance in the local environment before acquiring it.

1.7 Scope of the study

1.7.1 Geographical scope

The study shall be within UNEB offices in Kampala - Ntinda. The study will be conducted in the years 2006-2008. This denotes that as technology proliferation continues, empirical evidence of this study may as well change.

1.7.2 Conceptual scope

The independent variables are perceived usefulness, perceived ease of use and attitude towards using. Under perceived usefulness, the researcher intends to cover the quality of work, productivity, job performance. Under perceived ease of use there is easy to use, skilful, rigidity and flexibility. Under attitude, the researcher will look at an individual's feeling associated with task performance

The dependent variable is actual usage.

1.8 Conceptual framework

The theoretical basis of this study stems from the Theory of Reasoned Action, (TRA) by Ajzen and Fishbein (1980). TRA indicates that the behavior, in this case the Dynamics financial management information system acceptance, is influenced by individual perception and attitude, competing environment and social pressure. The tool of study TAM, as developed by Davis (1991) is an extension of TRA. TAM postulates that individuals maybe motivated to use an information system because of the intrinsic rewards derived, like perceived usefulness, perceived ease of use and attitude towards using the system.

He assumes that a user's perceived ease of use towards the system can contribute to improving a person's performance. Due to the fact that the user will have to deploy less effort with a tool that is easy to use, he will be able to spare efforts to accomplish other tasks. He also assumes that with perceived usefulness the quality of work and productivity will increase, because the system should help the user perform better. Both perceived usefulness and perceived ease of use predict attitude towards using the system, defined as the user's desirability of his or her using the system. A user's overall attitude towards using the given system is hypothesized to be a major determinant of whether or not he actually uses it. Attitude and perceived usefulness influence the individual to actually use the system.

Fig. 1: The Technology Acceptance Model for new information system acceptance at UNEB

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┌──────────────┐
│ Perceived    │
│ Usefulness   │─────────────┐
└──────────────┘             ▼
       ▲              ┌──────────────┐      ┌──────────────────┐
       │              │ Attitude     │      │ Actual usage     │
       │              │ towards using│─────▶│ of a new financial│
       │              └──────────────┘      │ Management        │
       │                     ▲              │ system           │
┌──────────────┐             │              └──────────────────┘
│ Perceived Ease of│─────────┘
│ Use          │
└──────────────┘
```
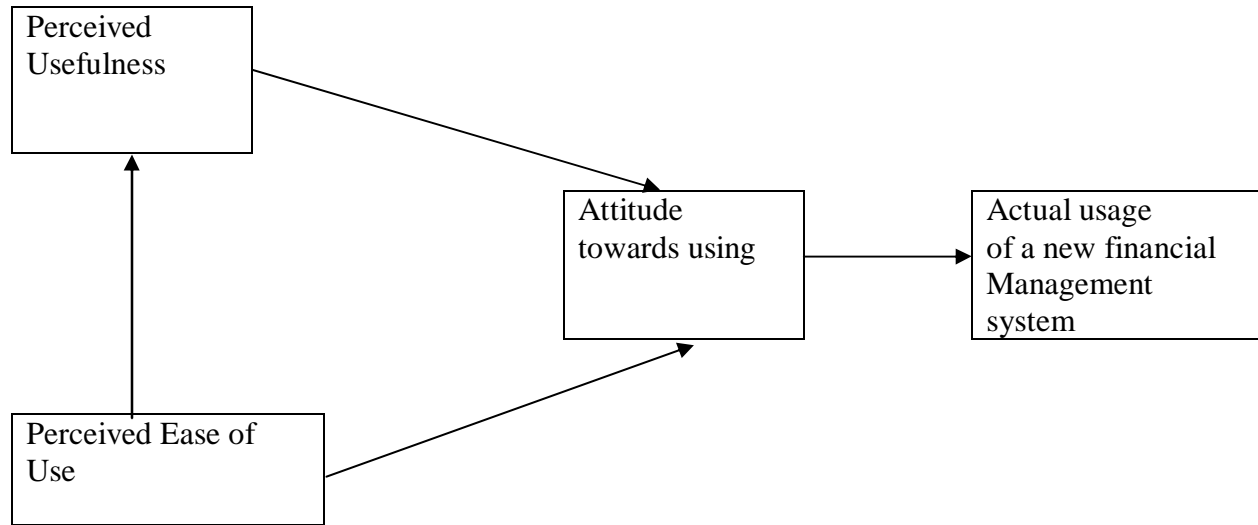
Source: Technology Acceptance Model (TAM) (Based on Davis et al. 1989)

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review on the Technology Acceptance Model. It covered some of the available literature on the TAM, the theoretical review, looking at the theories which were the guiding principle of the study, that is the variables, and the extensions to the TAM. It also dealt with the actual review that was done objective by objective. The rationale of the literature review was to discuss existing literature with the objective of revealing contributions made by earlier scholars, weaknesses and gaps in existing knowledge and lessons learnt. The sources of the literature were journals, text books and online materials by scholars and academicians.

2.2 Technology Acceptance Model (TAM)

A long standing objective of information systems has been to improve our understanding of the factors that influence successful development and implementation of computer based systems in organizations (Keen, 1980). The acceptance of new technologies has long been an area of inquiry. The acceptances of personal computer applications, telemedicine, e-mail, workstations, and the world wide web, are some of the examples of technologies that have been investigated in the recent times.

Issues related to technology, including diffusion, acceptance, adoption and adaption, have been the focus of research for different disciplines including Information Systems (IS). The effectiveness of the resulting information system is positively associated to the influence of the information system as an organizational change agent (Dias, 1986). Using computers to help individuals perform their jobs better is one of the most important actions we take when

implementing technology effectively. But we are left with a question: what motivates individuals to use computer technology in organizations? Although it is acknowledged that computers bring benefits for individuals and organizations, there is still some resistance in using them in workplaces and private life. User technology acceptance is a critical factor for IT adoption and many studies have predicted this using the technology acceptance model.

Davis (1989) came up with a model that he believed would explain effects of system characteristics on user acceptance of computer- based Information Systems. The model referred to as the Technology Acceptance Mode (TAM) is an information systems model that shows how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness (PU) and Perceived ease of use (PEOU) and their attitudes towards the use of the system.

The technology acceptance model (TAM) developed by Davis et al., (1989) is one of the most widely used and influential models in the field of information systems, technology and services. It has been validated to be powerful as a framework to predict user acceptance of new technology. The goal of TAM is to predict information system acceptance and diagnose design problems before users have any significant experience with the system. TAM specifically measures the determinants of computer usage in terms of perceived usefulness and perceived ease of use. TAM has been effective in the modeling of acceptance of IT and has received extensive empirical support through the studies predicting the use of information systems.

TAM is derived from the Theory of Reasoned Action (TRA) model which seeks to explain a broader range of behaviors based on situations specific combinations of personal beliefs and attitudes, and the effect of beliefs of others close to the individual Szajna, (1996). The

technology acceptance model is based on principles adopted from Fishbein and Ajzen (1975), attitude paradigm from psychology, which (1) specifies how to measure the behavior-relevant components of attitudes, (2) distinguish between beliefs and attitudes and (3) specifies how external stimuli are actually linked to beliefs, attitudes and behavior. Hence, within the technology acceptance model, attitude was employed. By identifying the particular beliefs that are operative in the context of computer user behavior, the proposed model provided diagnostic insight into how system characteristics influence user attitudes and usage.

TAM has been widely utilized by several researchers to understand the factors that determine technology acceptance and usage (Igbaria, 1996; Anakwe et al., 2000; Venkantesh et al., 2002). Fred Davis developed the Technology Acceptance Model foundation to explain how and when users decide to accept and use a technology. The model suggest that when users are presented with a new software package, "perceived usefulness" and "perceived ease of use" influence their decisions about how and when they use the new software. Davis developed TAM to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range end-user computer technologies and user populations, while being both parsimonious and theoretically justified, (37th Hawaii International Conference on Systems Sciences – 2004). TAM has extensively been incorporated as a methodology to measure attitude towards technology adoption from users in multiple domains. Davis et al., listed some boundary conditions for the applicability of their model. They acknowledged that their primary interest is in workplace settings in which utility is the primary value of user acceptance (1989, p. 986).

The scales, perceived ease of use, perceived usefulness, attitude towards using the systems, and actual intention to use the system were adapted for use in this study. These tools

allow researchers and practioners the ability to apply scales which have already been developed and empirically validated in previous research, thereby avoiding the potentially time consuming and costly effort required to develop a new measurement instrument.

The need for understanding how and why technology has or has not been adopted is important for managers and providers alike. Understanding why individuals accept or reject systems has proven to be one of the most challenging issues in information systems research Doll et al., (1998). User acceptance of information technology- a phenomenon which is not yet well understood and usage are unquestionably crucial factors in the ultimate determination of an information system success, since information systems that are not used are of little value (Mathieson et al., 2001). Theorists and empirical researchers have been trying to understand the relevant motivators to the implementation and use of computer technology in the workplace. They maintain that people make an effort because a task is enjoyable and offers external rewards (Deci, 1975); Igbaria & Livari, 1995).

The rewards relate to technology based factors like perceived enjoyment and perceived attractiveness (Van der Heijden, (2004), personal factors like personal innovativeness (Agarwal & Prasad, 1999), or interpersonal factors like trust (Gefen, Karahanna, & Straub, 2003). Although it is known that individuals expend effort due to both intrinsic and extrinsic motivation, less thought is given to an individual's intrinsic reasons for accepting computer technology (Igbaria & Livari, 1995).

A significant and growing body of researchers has confirmed the usefulness of TAM and various extensions and revisions as a tool for investigating and predicting user information technology acceptance. Davis conducted numerous experiments to validate TAM by using PEOU and PU as two independent variables and system usage as the dependent variable. TAM's

values lies in its parsimony- the model is strongly grounded in existing psychological theory, yet it is easy (and thus, cost-effective) to apply. Furthermore, it makes explicit links to the concept of usability via the ease-of-use construct.

The diffusion and infusion of information technology, however, is a complex process that is influenced by numerous factors such as perceived characteristics of the innovation, stages of adoption, user competence, implementation process and organizational factors (Chiasson & Lovato 2001). Each of these factors and many more, have a direct effect on diffusion. Other findings suggest that migration costs (Chau & Tam 2000), earliness of adoption; top management support and organizational size are positively associated with technology acceptance. However, advocacy by middle management is seen not to have a positive effect on the success of implementation (Carter et al., 2001), but rather having the right organizational and individual incentives could cause a widespread adoption and acceptance.

Thus, according to TAM, a user's acceptance of an information system is dependent on two factors: perceived usefulness and perceived ease of use. Together, these factors determine the attitude toward using the technology. This in turn affects the behavioral intention to use, which then leads to actual system use.

2.3   TAM variables

2.3.1 Perceived ease of use

Perceived ease of use is defined as the "the degree to which an individual; believes that using a particular system would be free from physical and mental effort" Davis, (1991). It has also been defined as a user's subjective perception of the effortlessness of a computer system. This follows from the definition of the word "ease": "freedom from difficulty or great effort." Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible (Radner & Rothschild, 1975). All else held constant, an application perceived to be easier to use than another is more likely to be more accepted by users.

Perceived ease of use explains the user's perception of the amount of effort required to utilize the system or extent to which a user believes that using a particular technology will be effortless (Davis et al., 1989). Perceived ease of use has been established from previous research to be an important factor influencing user acceptance and usage behavior of information technologies (Igbaria, Livari, & Maragahh, 1995). Perceived ease of use consists of the following determinants: easy to use, easy to read, using understandable terms, able to link to search for related information and easy to return to previous page. This includes support, complexity and change management.

Venkatesh (2000) reported perceived ease of use 'describes the individual's perception of how easy the innovation is to learn and to use'. Given that some fraction of a user's total job content is devoted to physically using the system *per se,* if the user becomes more productive in that fraction of his or her job via greater ease of use, then he or she should become more productive overall. Users believe that a given application may be successful, but they may, at the

same time, believe that the technology is too hard to use and that the performance benefits of usage are outweighed by the effort of application (Davis & Arbor 1989).

Gefen and Straub (2000) suggested managers and co-workers need to realize that the same mode of communication maybe perceived differently by the sexes. This argument is strengthened by the studies on the effects of gender and their ease to use a new technology. Venkatesh et al., (2000) found gender differences in individual adoption and sustained usage of technology in the workplace. In their study, men's decision in this regard were more strongly influenced by their attitude towards using the new technology, while women were more strongly influenced by their subjective norm and perceived behavior control. Harrison and Rainer (1992) also found some relationship between gender and computer skills. Male associates had higher computer skills, while their female counterparts recorded a higher level of computer anxiety.

2.3.2 Perceived Usefulness

Perceived usefulness been defined as a person's subjective perception of the ability of a computer to increase job performance when completing a task, which affects their perceived usefulness thus having an indirect effect on user's technology acceptance. It is defined as 'the degree to which a person believes that using a particular technology will enhance his or her job performance' (Davis, 1986). In the words of Davis, Bagozzi, and Warshaw (1992), perceived usefulness refer to consumers' perceptions regarding the outcome of an experience. This follows from the definition of the word useful: "capable of being used advantageously." Within an organizational context, people are generally reinforced for good performance by raises, promotions, bonuses, and other rewards (Pfeffer, 1982; Schein, 1980; Vroom, 1964). A system

high in perceived usefulness, in turn, is one for which a user believes in the existence of a positive use-performance relationship.

People tend to use or not to use a system application to the extent they believe it will help them perform their job better (Davis et al., 1989). Usefulness can also be defined as the prospective adopter's subjective probability that applying the new technology from foreign sources will be beneficial to his personal and/or the adopting company's well being (Phillips et al., 1994, pp.18). Or that using the technology would improve the way a user could complete a given task.

Perceived usefulness explains the user's perception to the extent that the technology will improve the user's workplace performance (Davis et al., 1989). This means that the user has a perception of how useful the technology is in performing his job tasks. This includes decreasing the time for doing the job, more efficiency and accuracy.

2.3.3 Attitudes towards using

At first, Lancaster (1996), noted that attitude is the driver of consumer utility or attributes. Triandis (1979), described attitude as an individual's positive or negative behavior towards innovation adaption. Doob called attitude 'an implicit drive-producing response considered socially significant in the individuals' society.' Chein called it, 'a disposition to evaluate certain objects, actions, and situations in certain ways.' These definitions state, in effect, that from the psychological point of view, attitude is an implicit response with drive strength which occurs within the individual as a response to stimulus patterns and which affects subsequent overt responses.

TAM suggests that attitude is based on the salient beliefs that a person has about the consequences of a given behavior and his or her evaluation of those consequences. Recently, Pikkarainen et al., (2004) defined attitude as the base of compatibility, which includes, for instance, the preference for self –service, technology and lifestyle. Davis further found attitude was at best a partial mediator of the effect of perceived usefulness on intention to use, and that it added little casual explanatory power to an individual's intention to use a particular Information System. Individuals who believed that using a new technology would lead to more positive outcomes, also tendered to have a more favorable attitude towards them

According to Ajzen and Fishbein (1975), attitude is an individual's positive or negative feeling associated with performing a specific behavior. They believed that an individual would hold a favorable attitude towards a given behavior if she/he believes that the performance of that behavior will lead to mostly positive outcomes. On the other hand, if the individual believes that mostly negative outcomes will result from the behavior, he/she will hold a negative attitude towards it (Mykytn & Harrison, 2003).

2.4. Technology Acceptance Model (TAM) extensions

There have been several theoretical models employed and developed to study user acceptance and usage behavior of emerging information technologies. An extensive body of subsequent research has confirmed the usefulness of TAM and various extensions and revisions- as a tool for investigating and predicting user information technology acceptance. The majority of them have been tested empirically in a wide variety of applications, establishing thus a valid set of methodologies for similar research. In this study the researcher presented some of the most common models that were used.

The Theory of Reasoned Action (TRA) was developed by Fishbein and Ajzen (1975), to explain and predict people's behavior in a specific situation. 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' towards behavioral intention.

Davis, Bagozzzi and Warshaw (1989) extended the Theory Reasoned of Action (TRA) with TAM to discover "synthesizing elements of the two models in order to arrive at a more complete view of the determinants of user acceptance". In the Theory of Reasoned Action, there are three conditions in which intention of an individual can accurately predict the behavior. First, the intention and behavior measures correspond in specificity of action, target, context and time frame. Second, intention and behavior do not change in the interval between assessment of intention and assessment of behavior. Finally, the behavior in question is under the individual's volitional control, that is, he/she can decide at will to perform or not perform (Fishbein & Ajzen, 1980). However, under circumstances where internal and external factors may hinder the volitional control of behavior, the Theory of Reasoned Action is a relatively poor predictor of these types of behaviors.

The Theory of Planned Behavior (TPB) is another model that Taylor and Todd (2001) extended, integrated and compared the TAM model to determine which model is most helpful in understanding the technology usage. TPB is a theory grounded on sociology, that has been used to explain social behavior and information use (Ashen, 1985,1991; Conner & Armitage, 1998; Dillon & Morris, 1996; Sutton,1998; Kwon & Onwuegbuzie , 2005). It is the "perceived easy or difficulty of performing the behavior" (Ajzen, 1991, p.188).

Thus the Theory of Planned Behavior was developed incorporating behavioral control factors in predicting behavior. It posits that most intended behaviors are subject to some

uncertainty and that the success in performing behavior depends not only on factors that may interfere with behavior control. More specifically, intention is an immediate predictor of behavior, (Ajzen, 1991). For example, external factors like money, opportunity and the cooperation of others and internal factors such as skills and self –control may influence a behavior (Netemeyer, Burton & Johnston, 1991). TPB views the controls that people have over their behavior as lying on a continuum from behaviors that are easily performed, to those requiring considerable effort, resources, etc. Furthermore, a behavioral belief, weighted by the evaluated desirability of this outcome forms an attitude.

Dishaw and Strong (1999) came up with the Task Technology Fit (TTF) model to try and fill the gaps posed by the Davis,' TAM model. They claimed that the only reason for IT use is if the available to end user functions fit the user needs and activities. That the TTF model matches the demands of a task and the capabilities of the chosen technology. As Goodhue (1995) noticed, individual ability, such as computer literacy and experience, become common additions later on. Apparently, this model was not very popular and is not widely applied because it left out a lot of other factors that influence IT usage.

Innovation is an idea, practice or object that is perceived as new by an individual, or a unit of adoption, and diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system. Thus the Innovation diffusion theory (IDT) (Rogers, 1983; Tornatzky & Klein, 1982; Moore, & Benbasat, 1991), another model also grounded in social psychology was developed. This theory provides a framework with which we can make predictions for the time period that is necessary for a technology to be accepted. IDT seeks to identify salient perceived characteristics of technology which may be expected to influence user adoption of that technology. We can see innovation diffusion as a set

of four basic elements: the innovation, the time, the communication process and the 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.

Constructs are the characteristics of the new technology, the communication networks and the characteristics of the adopters. They also found out that relative advantage and complexity constructs in IDT are similar to PU and PEOU respectively.

Venkatesh, Morris, Davis, and Davis (2003) extended TAM, building a new model called the Unified Theory of Acceptance and Use of Technology (UTAUT), which helps mangers assess the likelihood of technology success as well as understand the drivers to technology acceptance. The UTAUT model aims to explain behavioral intentions to use an IS and subsequent usage behavior. According to this theory, four constructs are direct determinants of usage intention and behavior. These are; performance expectancy, effort expectancy, social influence, and facilitating conditions. Gender, age, experience and voluntariness of use which are posited to mediate the constructs on usage intention and behavior.

TAM has been found to be extremely robust across time settings, populations and technologies and has been replicated using different tasks and tools by researchers and practioners. TAM has received extensive empirical support through validations, applications and replications, (Adams et al., 1992; Chin & Gopal, 1993; Chin & Todd, 1995; Davis, & Venkatesh, 1996; Gefen & Straub, 1997; Igbaria et al., 1997; Mathieson, 1991; Szajna ,1994).

In another comparison of several models, Mathieson (1991) found that TAM predicted intention to use a spreadsheet package better than alternative models. The paths suggested by TAM each explained a high degree of variance. Similarly, in another comparison of theoretical

models, Taylor and Todd (1995) found that TAM provided good data on the use of a computing resource center, explaining 34% of the variance in behavior, 52% of the variance in intention, and 73% of the variance in attitude. TAM's value lies in its parsimony—the model is strongly grounded in existing psychological theory, yet is easy (and thus, cost- effective) to apply. Furthermore, it makes explicit links to the concept of usability via the ease-of-use construct.

However, Saga and Zmud (1994) after reviewing over twenty empirical studies using these models asserted that TAM is the most influential model in predicting the acceptance of technology.

2.5 Relationship between variables

2.5.1 Relationship between perceived ease of use and perceived usefulness

Davis (1989) conducted numerous experiments to validate TAM by using perceived ease of use (PEOU) and perceived usefulness (PU) as two independent variables and system usage as the dependent variable. He found that PU was significantly correlated with both self reported current usage and self-predicted future usage. PEOU was also significantly correlated with current usage and future usage. Overall, he found that PU has significantly greater correlation with system usage than did PEOU.

Perceived ease of use is posited to have a direct impact on perceived usefulness. It is thought that the easier it is to use a technology, the greater the expected benefits from the technology with regard to performance enhancements. While perceived usefulness has emerged as a consistently important attitude formation, studies have found out that perceived ease of use has been inconsistent and of less significance. The literature suggests that a plausible explanation could be the continued prolonged users' exposure to technology leading to their familiarity, and

hence the ease in using the system. Therefore, users could have interpreted the perceived ease of use as 'insignificant' while determining their intention to use a technology.

According to Davis, there exists a direct effect of perceived ease of use on perceived usefulness. In other words, between two systems offering identical functionality, a user should find the one that is easier to use more useful. Davis (1993) states that because some of the users' job content includes use of a computer *per se,* if a user becomes more productive via ease of use enhancements, then he or she should become more productive overall. Perceived usefulness is not hypothesized to have an impact on perceived ease of use. Davis states that '… making a system easier to use, all else held constant, should make the system more useful. The converse does not hold however" (p.478).

In addition, Davis et al., (1989) proposed that perceived ease of use is also an antecedent of perceived usefulness. *Ceteris paribus*, the less effort a system require to use, the more using it can increase job performance" (Venkatesh & Davis, 2000, p. 192).

2.5.2 Relationship between perceived usefulness and attitudes towards using the system

As in the past TAM studies, the first underlying relationship is that perceived ease of use and perceived usefulness will have a possible impact on enhancing user's attitude towards usage. It is believed that perceived usefulness was affected by the level of an individual's trust (Eriksson et al., 2005). Pikkarainen et al., (2004) found that, perceived usefulness of an information system was the most influential factor in determining its usage. It was found that usefulness had a significantly strong relation with usage, greater than that between perceived ease of use and usage (Davis, 1989; Eriksson et al., 2005; Guriting & Ndubusi, 2006).

Experience and education levels have been found to be important factors in the way an individual perceives a new technology as being useful, and their attitude towards using it (Poon, 2008; Lymperopoulos & Chaniotakis, 2005). The level of education is an indication of the ability of potential users to learn, therefore, they should be positively associated with beliefs. The scholars also found out that education and experience affect attitudes of the employees indirectly through perceived usefulness.

Lai and Yang (2009) argue that employees in a performance-oriented e-business context are generally reinforced for good performance and benefits. This means that realizing usefulness of say the UNEB financial management system will positively impact attitude toward that application. The effect of perceived usefulness on attitude has been validated in many existing studies (Chen et al., 2002).

It is posited that attitude towards using a new information system is determined by the users' perception of usefulness and that attitude is in turn a key determinant of actual usage of the new information system.

2.5.3 Relationship between perceived ease of use and attitudes towards using the system

According to Fishbein and Ajzen, (1975, p.233), attitude towards actual usage is determined by an expectancy of how easy the user thinks he can use the system. Although they recommend using a self stated evaluation term, this has become a point of considerable debate in psychology.

TAM posits that PEOU has a direct positive effect on attitude towards using the system. Complexity of one particular system will become the inhibitor that discourages the adoption of an innovation (Rogers, 1995). The existing studies suggest that perceived ease of use is a major attribute in determining the attitude of an individual towards system usage. Users would be

concerned with the effort required to use that application and the complexity of the process involved. Such perceived ease of use of identifying information and performing transactions should enable favorable and compelling individual experience.

PEOU is also hypothesized to have a significant effect on attitude. TAM distinguishes two basic mechanisms by which PEOU influences attitude and behavior leading to actual usage: self-efficacy and instrumentality. The easier a system is to interact with; the greater should be the user's sense of efficacy (Bandura, 1982) and personal control (Lepper, 1985) regarding his or her ability to carry out the sequences of behavior needed to operate the system.

2.5.4 Relationship between attitudes towards using the system and actual use of the system

According to the expectancy-value theory developed by Fishbein and Ajzen (1980), external variables influence beliefs about the outcomes associated with performing a behavior, which in turn shapes attitudes towards performing a behavior. Attitude, in turn, influences intention to perform and, ultimately, influences the behavior itself.

As articulated in the Theory of Reasoned Action (TRA), these relationships will be predictive of behavior when the attitude and belief factors are specified in a manner consistent with behavior to be explained on terms of time, target and context. Within the IT literature, TAM has been widely applied to understand the attitude one holds about the use of technology, which is used to predict the adoption and use of technology. The attitude construct in TAM represents the attitude toward the behavior of using technology. Previous studies have used attitudinal variables to determine the actual usage of an information system.

An individual's attitude is a significant factor that affects one's behavior in accepting or rejecting technology. Davis et al., underscored that the role of social influences in information

technology acceptance and usage represented an important area for better understanding of 'real world' applications of TAM. Research informing the role of social influence processes in technology acceptance and usage behavior is also relevant for understanding the instability of belief structures in certain contexts of technology acceptance.

These issues are important because usage behaviors caused by one's own attitude are more sustainable in the absence of external influences such as peer pressure. By identifying the particular beliefs that are operative in the context of computer use behavior, the proposed model should provide diagnostic insight into how system characteristics influence user attitudes and actual system usage.

Attitude involves judgment whether the behavior is good or bad and whether the user is in favor or against performing it, (Leonard et al., 2004). It has a direct effect on intention to use. TAM suggests that a prospective user's overall feelings or attitude towards using a given technology-based system represent major determinants as to whether or not he/she will ultimately use the system, Davis (1993). TRA and TPB also assume that an individual's adopting of a new information system is motivated by behavioral attitudes, Davis et al., (1989). Understanding the determinants of consumers' attitude, it is argued has a strong, direct and positive effect on an individual's intention to actually use the system.

2.6 Weaknesses and gaps

This study notes that TAM as a model has some theoretical gaps. A critical parameter of IT applications successes still remain users' adoption. (Journal of Applied Sciences 8(5): 899-902, 2008. Understanding why individuals accept or reject systems has proven to be one of the most challenging issues in information systems research (37th Hawaii International Conference on

Systems Sciences – 2004). TAM is predictive but its generality does not provide sufficient understanding from the standpoint of providing system designers with the information necessary to create user acceptance for new systems (Mathieson, 1991).

Even though it is believed that TAM represents an important theoretical; contribution towards understanding IS usage and IS acceptance behavior, several researchers noted that, TAM is incomplete in several important aspects: it does not account for social influence in the adoption and utilization of new Information Systems. (Yogesh) Specifically they observed that it is difficult to distinguish if usage behavior is caused by the influence of referents on one's intent, or by one's own attitude.

Despite its predictive ability, TAM provides only limited guidance about how to influence usage through design and implementation (Taylor & Todd, 1995; Venkatesh et al., 2003). For example, designers receive feedback about important aspects of the IT artifact itself (e.g., flexibility, integration and completeness of information). Such guidance was a core objective in the development of TAM, but one that has received limited attention.

Further still, some studies criticize TAM for its examination of the model validity with students who have limited computing exposure, administrative and clerical staff, who do not use all the IT functions found in software applications. Studies also indicate that the applicability validity and reliability of TAM to specific disciplines such as medicine and law, is not yet fully established (Hu et al., 1999). Moon and Kim (2001) also believed that even though TAM is a model applicable to a variety of technologies, it has been criticized for not providing sufficient information on individuals' opinion about novel systems.

Technology acceptance research has been relatively limited in its application to the public sector. The researcher agrees with most scholars that there is a concurrent need to develop and

gain empirical support for models of technology acceptance. Despite impressive advances in software and hardware capabilities, the troubling problems of underutilized systems continue. Developers and software industries are beginning to realize that lack of user acceptance of technology can lead to loss of money and resources.

However, the emergence of self service technologies and their widespread dispersion has created a need for research focusing on factors that influence their acceptance and adoption by groups who might not otherwise be interested in using technology (Curran et al., 2003; Dabholkar & Bagozzi, 2002; Wang, Wang, Lin, & Tang, 2003; Meuter et al., 2005). Customers will reduce their usage and even refuse to use technology if they subjectively expect that an injury or a loss is likely to occur while using the technology. The degrees of risk that the consumers perceive and their risk tolerance are attitudinal factors that affect their usage (Chan et al., 2004).

The TAM was focused on measuring opinions of individual workers (Davis, 1989, pp. 998-999), and in so doing it did not take into consideration the effects of social organization, such as distribution and delegation of work, different work roles, or joint work routines at the workplace. Also, the model does not take into effect the possibility that a technology may be initially accepted, but later on abandoned, or vice versa.

Venkatesh (2000) writes that while parsimony is TAM's strength, it is also the models constraint. In that it does not help understand and explain acceptance in ways that guide development beyond suggesting that system characteristics impact usefulness and ease of use, thereby placing a limitation on the ability to meaningfully design interferences to promote acceptance.

Conclusions

Of all research conducted and models developed to study technology related issues, the Technology Acceptance Model (TAM) a model originally conceived by Fred Davis in 1986, stands out as most prominent, particularly in the field of Information Systems. Since its introduction TAM has enjoyed increasingly wide acceptance and has proven to be a reasonable accurate predictor of both users' intentions to use an information technology and of their systems usage. The strength of TAM lies in the fact that it has been tested in IS with various samples sizes and characteristics. Results of these tests suggest that it is capable of providing adequate explanation as well as predicting user acceptance of IT.

Chapter Three: Methodology

3.1   Introduction

This chapter presents the research methods and instruments which were used in carrying out the study.   It specifically covered the description of the research design, study population and sample size, measurement of the variables, source of data, data collection instruments, reliability of research instruments, data quality control, data processing and analysis and limitations of the study.

3.2   Research design

The study used a cross sectional survey design. This was because data and information derived from it could be obtained at a particular point in time and was gathered once. It was based on survey of all the employees of UNEB.

3.3   Study population

The study population comprised of all 200 UNEB staff. These individuals were particularly selected because members were literate to understand the study instrument and most had used an information system at a certain time.

3.4   Sample Size

The study sample size was 144 employees from UNEB. This sample was used basing on Krejcie and Morgan, (1970). The proportionate stratified and simple random sampling designs were used to obtain a sample size of 144 staff from a population of 200 staff. Stratification was used as one of the probability methods because it is more efficient than other methods when a population has certain groups that have the same characteristics but these characteristics differ among the group. The method also gives more

information. The employees were stratified according to the levels of employment that is academic and administrative staff. Refer to Table I.

Table 1 *Showing proportionate stratified sampling*

Employee level	Population	Sample size
Academic staff	150	100
Administrative Staff	50	44
Total	200	144

Source: Primary data

3.5   Measurement of Variables

Validated scales from previous research were used to measure the variables. Attitude towards using was measured using a three point Likert rating scale as suggested by Fishbein and Ajzen (1980) basing on identified parameters. Perceived ease of use and perceived usefulness were measured using the measurement scales given in the appendix, which were developed and shown to have a high degree of convergent and discriminate validity by Davis (1989).

Three items were used to measure actual system use. One was a measure of the frequency of use of the system. The second was to ask subjects to specify how many hours they normally spend each week using the Dynamics system. The third was how much time was spent using the system. Five-position categorical boxes were used. Eight-item scales were employed for perceived ease of use; and ten-item scales for perceived usefulness. Attitude was measured on a general three-item affective scale

3.6   Sources of data

The primary sources of data that were used were questionnaires and observation. The questionnaires were semi-structured comprising of pre-determined and logically related questions, both open ended and closed questions.

The secondary source of data were available records, various reports, internet sources journals, text books and documents written on the subject. These methods were used because they were more efficient in terms of times and costs, they were easy to use and administer: and also because another person can collect data using the same questionnaires.

3.7   Data collection Instruments

The primary data was collected from 144 respondents. Letters were given to the respondents asking them to participate in the study. Self-administered questionnaire instruments contained scales to measure the various constructs depicted in the study variables, Perceived ease of use, Perceived Usefulness, Attitude toward using and Actual system Usage were used. Participation was voluntary and confidential.

The secondary data used was various reports, internet sources, literature review and documents written on the subject. This was used to compare and contrast the study variables.

3.8   Validity and Reliability of Research Instruments

Validity which determines whether the research fully measures to that which is intended to measure was done and the instruments were rated relevant. The reliability test was done by performing Cronbach's Alpha tests (1946). The Cronbach reliability test was

found to be satisfactory since the results were all above the required rule of thumb value 0.6 (Sekaran, 2000). This meant that the scales used to measure the variables were consistent and reliable. Below, table II shows the reliability indices/ coefficient for all constructs used in the study.

Table 2 *Cronbach's Alphas for the study variables*

Variable	Alpha value
Perceived ease of use	0.85
Perceived usefulness	0.92
Attitude toward using	0.80
Actual system usage	0.80

Source: Primary data

3.9   Data Processing and Analysis

Data collected from the primary survey was compiled, sorted, edited and coded. Data from questionnaires was analyzed using SPSS (Statistical Package for Social Scientists) computer package. Analysis of variance (ANOVA) to establish the difference across the variables under the study was also measured. Pearson's correlation was used to establish the relationship between Perceived ease of use, Perceived Usefulness, Attitude toward using and Actual system Usage. This is because Pearson's correlation is the most common measure of correlation, which reflects the degree of linear relationship between variables. A multiple regression analysis was then conducted to determine the

contribution of Perceived ease of use, Perceived Usefulness, Attitude toward using on the dependent variable (Actual system Usage).

3.10   Limitations of the Study

a) Sample was limited to one particular user setting at one point in time and was therefore limited for broader generalization. So the findings maybe validated among other populations. A cross sectional survey design was used but a longitudinal research design is essential to confirm the linkages among the study variables.

b) Even though the respondents had used computers before, not all of them were very computer literate and comfortable with the new technology which may affect their perceptions of it. Less experienced users may find may find the technology difficult to use and less enjoyable, which may lead to negative attitude.

c) Some respondents were reluctant to fill in the questionnaire because they had misconceptions about the purpose of the research.

d) Scales used in the study were adopted from previous studies carried out in developed countries. Such scales might not give accurate results when carried out in developing counties like Uganda given the level and differences in settings.

Chapter Four: Data Presentation, Analysis and Interpretation of the Findings

4.1   Introduction

This chapter presents the findings of the study. Descriptive analysis on the sample was presented using cross-tabulations, ANOVA analysis showing the differences across the study variables, Pearson's correlation and regression analysis performed the inferential analysis of the data.

The presentation of the findings has been presented in accordance with the research objectives as re-stated below;

i)   What is the relationship between Perceived Ease of use and Perceived Usefulness?

ii)   What is the relationship between Perceived Usefulness and Attitudes towards using the system?

iii)   What is the relationship between Perceived Ease of Use and Attitudes towards using the system?

iv)   What is the relationship between Attitudes towards Using and Actual Use of the system?

4.2   Sample Characteristics

4.2.1 Response Rate

Out of the 144 closed questionnaires administered only 101 questionnaires were filled and received back. The response rate was 70%.

4.2.2 Age of the respondents by Gender

Data on gender was important because it has been suggested that gender influences usage of certain computer programs. The researcher used cross tabulations to study the distribution of age by gender of the respondents. Refer to Table III

Table 3 *Showing the age of the respondent by Gender*

Age of Respondents	Gender of the respondents		Total
	Male	**Female**	
18-29		**13**	**13**
Row %		100.0%	100.0%
Column %		35.1%	12.9%
30-39	**20**	**5**	**25**
Row %	80.0%	20.0%	100.0%
Column %	31.3%	13.5%	24.8%
40-49	**33**	**11**	**44**
Row %	75.0%	25.0%	100.0%
Column %	51.6%	29.7%	43.6%
50-59	**11**	**8**	**19**
Row %	57.9%	42.1%	100.0%
Column %	17.2%	21.6%	18.8%
Total	**64**	**37**	**101**
Row %	63.4%	36.6%	100.0%
Column %	100.0%	100.0%	100.0%

Source: Primary data

Table III above shows that the age bracket of 40-49 years had the highest percentage of respondents in the sample with 43.6%. Of these respondents, 75.0% were males and 25.0% were females. Respondents in the 18-29 year category had the lowest percentage of respondents with 12.9%. Of these, there were no male respondents and the female

respondents were 35.1%. The sample was dominated by males with 63.4%, most of who were in the 40-49 years and majority of the females were in the age category of 18-29 years constituting 35.1%.

4.2.3 Age of the respondents by level of education

The researcher used cross tabulations to study the distribution of age by level of education of the respondents. Refer to Table IV

Table 4 *Showing the age of the respondent by Level of education*

Age of Respondents	Level of education			Total
	Masters	Bachelor's	A-level	
18-29		**13**		**13**
Row %		100.0%		100.0%
Column %		20.6%		12.9%
30-39		**25**		**25**
Row %		100.0%		100.0%
Column %		39.7%		24.8%
40-49	**19**	**25**		**44**
Row %	43.2%	56.8%		100.0%
Column %	67.9%	39.7%		43.6%
50-59	**9**		**10**	**19**
Row %	47.4%		52.6%	100.0%
Column %	32.1%		100.0%	18.8%
Total	**28**	**63**	**10**	**101**
Row %	27.7%	62.4%	9.9%	100.0%
Column %	100.0%	100.0%	100.0%	100.0%

Source: Primary data

Table IV above shows that the age bracket of 40-49 years had the highest percentage of respondents in the sample with 43.6%. Of these respondents, 56.8% are bachelor's degree

holders and 43.2% are master's degree holders. Respondents in the 18-29 year category had the lowest percentage of respondents with 12.9%. Of these, there were no masters degree holders and the bachelor degree holders were 100.0%. The sample was dominated by bachelor's holders with 62.4%, most of who were in the 40-49 years.

4.2.4 Gender of the respondent by level of education

The researcher used cross tabulations to study the distribution of gender by education level of the respondents. Refer to Table V

Table 5 *Showing the gender of the respondent by education level*

Gender of Respondents	Level of education			Total
	Masters	Bachelor's	A-level	
Male	**26**	**36**	**2**	**64**
Row %	40.6%	56.3%	3.1%	100.0%
Column %	92.9%	57.1%	20.0%	63.4%
Female	**2**	**27**	**8**	**37**
Row %	5.4%	73.0%	21.6%	100.0%
Column %	7.1%	42.9%	80.0%	36.6%
Total	**28**	**63**	**10**	**101**
Row %	27.7%	62.4%	9.9%	100.0%
Column %	100.0%	100.0%	100.0%	100.0%

Source: Primary data

Table V above shows that the males had the highest percentage of respondents in the sample with 63.4%. Of these respondents, 40.6% were masters' holders, 56.3% were

bachelor's holder and 3.1% were A-level holders. The sample was dominated by bachelor's degree holder with 62.4%, most of who were males.

4.3   Inferential Statistics

4.3.1   Analysis of Variance

The ANOVA analysis was carried out to establish whether there were significant differences in the identified groups as far as a particular variable is concerned.

4.3.1.1   Gender by Variable

Table 6 *Showing ANOVA Descriptive for gender by Variable*

ANOVA Descriptive for gender by Variable		Mean	Std. Deviation	F	Sig.
Perceived Ease of Use	Male	3.71	.41	1.01	.318
	Female	3.79	.40		
	Total	3.74	.41		
Perceived Usefulness	Male	4.64	.60	10.83	.001
	Female	4.09	1.09		
	Total	4.44	.86		
Attitude towards using	Male	1.29	.57	8.08	.005
	Female	1.66	.72		
	Total	1.42	.65		
Actual usage	Male	3.41	.50	2.70	.103
	Female	3.58	.51		
	Total	3.47	.51		

Source: Primary data

The table VI above shows that, on Perceived Ease of Use, females (F=3.79) ranked higher than their male counterparts (M=3.71). However there was no significant difference across the sex group on perceived ease of use (F=1.01, Sig=0.318). On perceived usefulness, males (M=4.64) ranked highest than their female (F=4.09). There was a significant difference across the groups on perceived usefulness (F=10.83, Sig=0.001). On attitudes towards using the system, female

(F=1.66) ranked highest than their male (M=1.29) counterparts. There was a significant difference across the groups on attitudes towards using the system (F=8.08, Sig=0.005). On actual usage, female (F=3.58) ranked highest than their male counterparts but there was no significant difference across the groups on actual usage.

4.3.1.2   Age bracket by Variable

Table 7 *Showing ANOVA Descriptive for age bracket by Variable*

ANOVA Descriptive for age by Variable		Mean	Std. Deviation	F	Sig.
Perceived Ease of Use	18-29	3.61	.37	3.91	.011
	30-39	3.64	.48		
	40-49	3.89	.29		
	50-59	3.61	.49		
	Total	3.74	.41		
Perceived Usefulness	18-29	3.95	.90	2.33	.080
	30-39	4.68	.44		
	40-49	4.50	.95		
	50-59	4.32	.92		
	Total	4.44	.86		
Attitude towards using	18-29	1.50	.56	1.85	.143
	30-39	1.19	.32		
	40-49	1.56	.83		
	50-59	1.36	.52		
	Total	1.42	.65		
Actual usage	18-29	3.74	.47	3.60	.016
	30-39	3.25	.43		
	40-49	3.45	.54		
	50-59	3.61	.42		
	Total	3.47	.51		

Source: Primary data

The table VII above shows that, on perceived ease of use, the age bracket of 40-49 (M=3.89) ranked highest followed by the age bracket of 30-39 (M=3.64) and there was a significant difference across the age brackets on perceived ease of use (F=3.91, Sig=0.011). Perceived usefulness and attitudes towards using the system, there was no significant difference across the

groups. On actual usage, the age bracket of 18-29 (M=3.74) ranked highest followed by the age bracket of 50-59 (M=3.61) with a significant difference across the age brackets (F=3.60, Sig=0.016).

4.3.1.3   Educational level by Variable

Table 8 *Showing ANOVA Descriptive for Educational level by Variable*

ANOVA Descriptive for Education level by Variable		Mean	Std. Deviation	F	Sig.
Perceived Ease of Use	Masters	3.76	.39	0.90	.409
	Bachelors	3.76	.40		
	A level	3.58	.54		
	Total	3.74	.41		
Perceived Usefulness	Masters	4.78	.30	4.27	.017
	Bachelors	4.36	.92		
	A level	3.97	1.14		
	Total	4.44	.86		
Attitude towards using	Masters	1.29	.64	1.15	.321
	Bachelors	1.45	.66		
	A level	1.63	.58		
	Total	1.42	.65		
Actual usage	Masters	3.42	.58	0.48	.620
	Bachelors	3.47	.47		
	A level	3.60	.54		
	Total	3.47	.51		

Source: Primary data

The table VIII above shows that, on perceived usefulness, masters' holders (M=4.78) ranked highest followed by bachelor's degree holder (M=4.36) and there was a significant difference across the education level on perceived usefulness (F=4.27, Sig=0.017). Perceived ease of use, attitudes towards using the system and actual usage, did not have a significant difference across the groups.

4.4   Relationship between Variables

This section presents the results that address the research objectives. Pearson's correlations tests were used to find out the relationship between the variables. This technique is used to determine the strength and direction of the relationships among the model variables. The results are as per the table IX below and the relationships between each variable are explained thereafter. Double asterisk means that there is a strong positive relationship between the variables. This means that you can use information about one variable to predict the values of the other variable.

Table 9 *Correlation Matrix for Study Variables (Zero Order Correlation)*

Correlations	Perceived Ease of Use	Perceived Usefulness	Attitudes towards using	Actual Usage
Perceived Ease of Use	1.00			
Perceived Usefulness	.327**	1.00		
Attitudes towards using	.123**	.732**	1.00	
Actual Usage	.245**	.444**	.414**	1.00

Notes: ** *Correlation is significant at the 0.01 level (2-tailed).*

Source: Primary data

4.4.1 Perceived Ease of Use and Perceived Usefulness

Findings from table IX above, revealed that there was a strong significant positive correlation between perceived ease of use and perceived usefulness (r=0.327**, p<0.01). This means that when employees find it easy to use the system, their perceived usefulness of that system increases. That is to say, if the system does not require much physical and mental effort, the employees will perceive it as capable of enhancing their job performance. Likewise if employees find it difficult to use the system, then perceived usefulness tends to decrease.

4.4.2 Perceived Usefulness and Attitudes towards using the system

Findings from table IX revealed that there was a significant positive correlation between perceived usefulness and attitudes towards using the system (r=0.732*, p<0.01). This means that if employees perceive the usefulness of the system as high, then their attitudes towards using the system will also improve and vice versa.

4.4.3 Perceived Ease of Use and Attitudes towards using the system

Findings from table IX revealed that there was a significant positive correlation between perceived ease of use and attitudes towards using the system (r=0.123, p-value<0.01). This implies that perceived ease of use by the employees influences the attitudes towards using the system significantly.

4.4.4 Attitudes towards Using the system and Actual Usage

Findings from table IX revealed that there was a significant positive correlation between attitude towards using the system and actual usage (r=0.414**, p<0.01). This implies that

if employees have positive attitude towards using the system, then actual usage of the system becomes more easily and vice versa.

4.5 **Regression analysis for Perceived ease of use, perceived usefulness, attitudes toward using the system and actual usage.**

Regression analysis was carried out to determine the predictability potential of the independent variables on the dependent variable. The results of the regression are presented in table X below.

Table 10   *Multiple Regression Analysis*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant)	3.675	.505		7.283	.000
Perceived ease of use	.232	.127	.188	1.833	.007
Perceived usefulness	.263	.089	.342	2.450	.004
Attitudes toward using	6.541E-02	.110	.084	.593	.554

Dependent Variable: **Actual Usage**
R square = **0.241**
Adjusted R squared= **0.217**

Source: Primary data

Table X, shows that the regression model was significant (F-change= 10.244, sig =0.00) and the predictions were observed to explain 21.7% of the observed variance in Actual Usage. Furthermore, perceived usefulness was observed to be a strong significant predictor of Actual usage (Beta= 0.342, sig=0.004) followed by the Perceived ease of use (Beta = 0.188, sig= 0.007) as shown in the table above. Attitude toward using (Beta =

0.084 sig=0.554) was found not to be a significant predictor of actual usage. The findings show that the measured variables explain 21.7% of the dependent variable, actual system usage. The rest of the explanation may be obtained from other variables that may have not been considered in this study.

Chapter Five: Discussion, Conclusion and Recommendations

5.1 Introduction

This section discusses the presentations in relation to the study objectives. In this study, the objectives were mainly to establish first, the relationship between Perceived Ease of use and Perceived Usefulness, then two the relationship between Perceived Usefulness and Attitudes towards using the system, then three the relationship between Perceived Ease of Use and Attitudes Towards Using the system and finally the relationship between Attitudes Towards Using and Actual Use of the system.

5.2   Discussions

5.2.1   Relationship between Perceived Ease of Use and Perceived Usefulness

The findings of the study revealed that there was a significant positive correlation between perceived ease of use and perceived usefulness. This meant that the more users perceive the system to be easy to use, the more they will see it as useful and vice versa. This finding is consistent with previous scholars like Davis et al., (1989), who revealed that firms which have strong and favorable perception of the usefulness of the systems, use more of them than those with weak or unfavorable perception of the useful systems. Furthermore, technologies perceived to be easy to use all things being equal, are deemed as useful, as suggested by the direct relationship existing between perceived ease of use and perceived usefulness, (Ndubisi et al., 2003). This finding is also similar with Kim et al., (2008); Lee (2009); Moon & Kim (2001); Wu & Chen, (2005) and Yu, et al. (2005), which showed perceived ease of use had direct effect on perceived usefulness and attitude toward use (Mohamed, 2010).

TAM treats perceived usefulness and perceived ease of use as two distinct antecedents towards the use of technology due to their positive correlation. However, findings from the first two applications of TAM showed that perceived usefulness was a significantly stronger factor than perceived ease of use.

5.2.2   Relationship between Perceived Usefulness and Attitudes towards using the system

The findings of the study revealed that there was a significant positive correlation between perceived usefulness and attitudes towards using the system. This meant that users are likely to form a positive attitude toward using the system when it is proven as a useful utility to the practice and vice versa. This finding is line with Taylor and Todd, (1995) which indicated that perceived usefulness has both direct and indirect influences on the attitude towards using the system (Mohammed, 2010). However in contrast, Davis et al., (1989) found that in a workplace environment, a system will be adopted if it is regarded as useful, irrespective of attitude provided to the use of the system.

The usefulness construct may reflect considerations of both the "benefits" and the "costs" of using the target system. Ease of use may be seen as part of the cost of using the system from the user's perspective.

5.2.3   Relationship between Perceived Ease of Use and Attitudes towards using the system

The findings of the study revealed that there was a significant positive correlation between perceived ease of use and attitudes towards using the system. This implies that perceived ease of use by the employees influences the attitudes towards using the system significantly. In other words, users intend to use the system more frequently as the system becomes easy to use. This finding is consistent with Davis et al., (1989), who proposed that perceived ease of use not only predicts attitude towards the IS, but is also an antecedent of perceived usefulness that is to say

the less effort a system is to use, the more using it can increase job performance, (Venkatesh & Davis, 2000; Sally et al., (2006).

The influence of system characteristics on attitudes towards using suggests that perceived usefulness and perceived ease of use may not be the only beliefs mediating between system and attitude. This leads us to consider beliefs that should be added to the model.

5.2.4   Relationship between Attitudes towards Using the system and Actual Usage

The findings of the study revealed that there was a significant positive correlation between attitude towards using the system and actual usage. This implies that if employees have positive attitude towards using the system, then actual usage of the system becomes more easy and vice versa.

The Technology Acceptance Model has a promise as a practical tool for early user acceptance testing. Given the large investments at stake when developing new systems, it is of essence to forecast user acceptance as early as possible in the design process (Gould et al., 1991; Rosson, Maass & Kellogg, 1987). User acceptance tests performed early in design, if sufficiently predictive of user acceptance, could reduce the risk of user rejection by enabling designers to better screen, prioritize, and refine application ideas. Although early testing is widely used, and encouraged by practicing designers, it is not known how well measures captured early in design reflect the level of user acceptance that would actually occur after an Information System is implemented in the workplace.

5.2.5   Regression with Actual system usage as Dependent Variable

Findings of the study on the regression model with actual system usage as the dependent variable explained 21.7% of the variance and the statistics indicates that it is significant at the *p<0.01* level.

Perceived usefulness was the strongest predictor in the model. This was in line Davis et al., (1989), who found that in a workplace environment, a system will be adopted if it is regarded as useful, irrespective of attitude provided that use of the system is perceived to offer direct benefits to the user. However this is a fact that if staff value the new system as useful to what they have been using in executing their duties, then others factors like attitudes and ease of use are secondary (Mohammed, 2010). This is in contrast to previous research by Chau and Hu (2002) which singled out attitude emerging as the most powerful predictor of system usage.

5.3   Conclusion

The research presented examined the relationship between perceived ease of use, perceived usefulness, attitude towards using the system and actual usage amongst UNEB staff. All the relationships tested were found to be significant and positive. Regression analysis revealed that perceived usefulness was a strong predictor of actual usage as compared to perceived ease of use and attitudes towards using the system.

Many designers believe that the key barrier to user acceptance is the lack of user friendliness of current systems, and that adding user interfaces that increase usability is the key to success (Branscomb & Thomas, 1985). Yet the present results indicate that although ease of use is clearly important, the usefulness of a system is even more important, and should not be

overlooked. Users may be willing to tolerate a difficult interface in order to access functionality that helps them on their job, while no amount of ease of use can compensate for a system that does not do a useful task.

Conclusion can therefore be made that factors that motivate individual users in different societies to accept technology should be conducted prior to introducing the technology. These studies could enable organizations to determine the factors that are likely to lead to high outcomes rather than simply copying what has worked elsewhere; due to the differences in settings and perceptions.

5.4 Recommendations

The findings of the study posit that perceived usefulness was found to be more important in influencing technology acceptance in UNEB. Therefore the designer of the dynamics financial management system should enhance perceived usefulness either by adding new functional capabilities to the system, or by making it easier to invoke the functions which already exist.

The findings of this study also revealed that perceived ease of use and perceived usefulness are correlated positively. Therefore factors that motivate individual users in different societies to accept technology should be conducted prior to introducing a new information system that is to say, training of staff, the financial benefits of new system, system simplified users manuals, trial usage, persuasion for usefulness, and so on, rather than simply copying what has worked elsewhere.

Staff to appreciate the actual usage of the new system as indicated in the findings, we recommend that top management in each organization should understand what the system does and should not only be left to the technical staff and the actual users. Therefore organizations should allow end users to participate in the decisions to adopt new information systems. This increases the likelihood that the chosen system fits the pre-existing values.

UNEB should also foster a higher level of commitment of end users by educating them about the need and relevance of the chosen information system for individual and organizational performance.

They should be a fit between the task, job and appropriate technology. That is to say, the technology to be utilized should be able to resolve the expected bottlenecks for which it is acquired. This is because technology is accepted and utilized because of its usefulness to the job or task being performed.

5.5   Further Areas of Research

This study focused on actual system usage and how perceived ease of use, perceived

usefulness and attitudes towards using the system lead to actual usage. However the

 model explained only 21.7% of these variables; Therefore:-

A large percentage of the unexplained variance suggests the need for additional research incorporating potential unmeasured variables like perceived enjoyment, the behavior aspects, participation in training, technical support control issues, perceived risks and computer self-efficacy.

The research was limited to cross sectional research design; we propose a   longitudinal study to determine whether influencing usage (Venkatesh and Davis, 2000) should be considered in order to validate the findings.

Future researchers should endeavor to collect and analyze both self report and objective usage data. This would help solve lingering questions regarding the TAM constructs and their effect on previous TAM research. Additional study of information systems in a range of organization setting is necessary to support the accumulation of knowledge and the development of a sound theory.

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