RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS AND ADAPTATION TO ICT IN LEARNING IN SELECTED UNIVERSITIES IN UGANDA

BY

JUDE KIZITO NAMUKANGULA

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DECLARATION

I Namukangula Jude Kizito do hereby declare that, to the best of my knowledge and belief the work hereby presented in this dissertation, except where otherwise stated, is original work of my own and it has never been previously submitted to any University for any award.

Signed .....

NAMUKANGULA JUDE KIZITO

Date 7th January 2008

APPROVAL

I certify that this dissertation whose title is **RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS AND ADAPTATION TO ICTs IN LEARNING IN SELECTED UNIVERSITIES IN UGANDA** has my approval as a Supervisor.

Signed .....

Dr. J. L. Nkata

Date 7-1-2008

DEDICATION

I dedicate this dissertation to my most beloved parents Mr. Joseph Koyongo and Mrs. Desire Kayongo whose incessant love, resourcefulness and support has lead me all the way through this second degree.

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ABSTRACT

This research investigated the relationship between personal characteristics and adaptation to ICT in learning. The objectives of the study were to: find out if there was a relationship between students' social-economic characteristics and adaptation to ICT in learning; establish whether there was a relationship between students' level of class performance and adaptation to ICT in learning; and investigate whether there was a relationship between students' gender and age and adaptation to ICT in learning. The study used a cross sectional design. The stratified sampling method was employed where 584 students were sampled out of 1446 ICT students in four universities where two of which were government aided and two were private owned. The Chi Square Test of Independence and Pearson Moment Correlation Coefficient were used to analyze data.

Three hypotheses were tested about personal characteristics and how they determine adaptation to ICT. Findings revealed that; personal characteristics determine adaptation to ICT in learning. In particular, in hypothesis one the students' income background, marital status, geographic origin, employment status, and school background determine adaptation to ICT. It was only the level of qualification that was not significant and did not determine adaptation to ICT in learning. In the second hypothesis, it was revealed that students' levels of class performance/intelligence determine adaptation to ICT in learning. In the third hypothesis, it was confirmed that the students' gender and age greatly affect the level at which they embrace the ICT revolution in learning.

It was therefore concluded that, there are many personal characteristics that determine adaptation to ICT in learning though some personal characteristics were not direct. That is; characteristics like the students' school background and origin were quite indirect but they are personal characteristics that highly determine the adaptation to ICT.

Basing on the findings of the study it was recommended that improvement in the students' social economic characteristics be done in order for them to adapt ICT in learning. In addition, there is need for students to have improved levels of class performance in order for them to get easily adapted to ICT in learning. Lastly, there is need to encourage more girls and students in the low age bracket to adapt to ICT in learning.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter presents the background to the study, problem statement, purpose of the study, objectives of the study, research hypotheses, research questions, scope and significance of the study.

1.1 Background

The application and adoption of ICT in Uganda's Universities has been and is still ineffective. Almost all Universities have made interventions to this phenomenon by obtaining ICT facilities and training end users but modest progress has been registered. Causal factors to this predicament are suspected to be among other reasons the personal characteristics that lead to ICT adaptation differences. In relation to this, Attewell and Natriello (2001) also said that the trend of relative access and use of ICT sometimes called the digital divide was becoming a great concern in universities among stakeholders. Baryamureeba (2004) also emphasized that; training of end users was a must if ICT was to be fully utilized. In particular, he said that mandatory training for end users in relevant ICT skills must always be part of a good ICT policy. This was part of the endeavors to raise optimality in the utilization of ICT in universities so as to create an effective adaptation to ICT, regardless of personal characteristics. Drake (2000) emphasizes the need for ICT policies to address inequities based on gender, rurality, ethnicity, economic status and disability.

For a long time Universities in Uganda have not been very sound in as far as inclusion of computer technologies in teaching and learnig is concerned. Many universities including

Makerere, Kyambogo Uganda Martyrs and Kampala Ionternational universities still graduate students who are computer illiterate. Reasons for this are not clear whether social –economic or not because in the developed world such does not happen Reddick et al. (2000), identified what they called the dual digital divide or inequality in which there was not only a divide between those who were using and those who were not using computers and/or the Internet, but also a divide within non-users reflecting the extent to which certain sub-groups of people were seeing the value in getting on the Information highway/path, while others could not see it. This argument pointed out the fact that, there might have been personal characteristic features which influenced students' adaptation to ICTs at a worldwide level including universities in Kampala Region like Makerere University, Kyambogo University, Uganda Martyrs' University and Kampala International University (KIU) – that is, it seemed some students had traits driving them to value the "Information highway", while others did not have them.

Withers (2000) confirmed that, the percentage of women in ICT was dropping rather than increasing because they took ICT to be more of a hard science to them. A study by Chan et al. (2000) showed that not only were women less likely to express an interest in computer science and related fields, they saw themselves as having lower levels of ability in ICT utilization. Hence, computer technology became a gendered "filter that could influence future plans and opportunities" Crombie and Armstrong (1999). This showed a disparity in adaptation to ICT among male and female students whose cause was not clear in universities in Kampala Region.

In the aforementioned universities of Uganda where computer science and computer engineering are offered, most of the students are males. The reasons for such an

occurrence are not clear. In addition to this, where computer hardware maintenance and programming are an option, ladies tend to avoid them opting for seemingly easier alternative courses. This is common in Makerere and Kyambogo universities It is not clear whether it is a retention rate problem or an attitudinal problem. In relation to this, Bruce (1992) propounded essential human factors properties of the ICT that could determine personal adaptation to ICT. Among these factors were; retention time - how well could the users retain their ICT knowledge. That is; high-class performers took short time to learn to use ICT and could easily retain ICT knowledge unlike their counterparts. However, it was not clear whether learners got adapted to those learning environments (i.e. ICT) that were easy to use according to their traits.

Twinomugisha (2002) noted that, with the exception perhaps of South Africa, higher education institutions on the African continent import ICT from developed countries. Most governments permit the importation of ICT equipment at little or no charge as part of their policies to combat poverty and promote education. For reasons like poverty and poor resource allocation, it is well known that African high education institutions suffer from poor ICT infrastructure. Only a few universities with subsidies from donors and the government have a reasonably well-developed infrastructure (campus backbone and LANs), but all of them confront the problem of too few computers. The ability to access available bandwidth is also dependent on the number of computers available to university users. None of the universities have nearly enough computers to go around. The universities that fall within the partnership aegis estimate that they should increase the number of computers at their institutions by more than 500 percent in the coming three to five years. Makerere University has 1,800 computers, but a population of more than 30,000 students. This partly explains reasons as to why there is a divide in adaptation to

ICT, but does not explain why the available ICT resources are not effectively used by students. Hence, this should be established.

According to Swasti (2004), the biggest challenge was that, the aforesaid universities offered less ICT equipment compared to students' population and few lecturers in those universities could effectively teach ICT. For example, on the End User Training Program, Makerere University mixed classroom teaching with online learning based on electronic paper software that was one of the recommended software for the International Computer Driving License (ICDL) Certification. This training was for all staff of Makerere University and students. They managed to train only about 35% of the staff and 20% of the first year students in ICT skills based on International Computer Driving Licence Curriculum, Baryamureeba (2004). This research therefore, was intended to investigate the students' characteristics that determine adaptation to ICT with the few available university ICT resources.

Theoretically, the research was based on Piaget's assumptions, which clearly state that individuals adapt to the new world through assimilation and accommodation principles. Assimilation principle - the process by which persons take material into their minds from the environment by changing the evidences of their senses to make it fit and Accommodation principle - the difference made to one's mind by the process of assimilation Scatterly (1987). This theory further explained that although most of the time we are assimilating familiar material in the world around us, nevertheless, our minds also have to adjust to accommodate it according to the stages of growth.

Depending on the above theory, it was implied that learners basically get adapted to ICT learning techniques and or environments that provide knowledge which they can assimilate (which can fit in their minds) and later they get accommodated or influenced by those learning environments, in this case ICT. It was therefore, necessary to carry out research in this area to establish, whether adaptation to ICT in learning depends on clearly stipulated Piaget's personal growth stages/ characteristics.

According to Piaget's assumptions, what students assimilate or learn in this case depends on their capabilities to learn it. That is, the students adapt ICT depending on the way they can assimilate them. If the students in a certain university cannot easily assimilate ICT in their minds, then they cannot easily accommodate them and therefore the reduced use of ICT among themselves – this is true to universities in Kampala Region. But if the students in a certain university can highly assimilate ICT according to their capabilities, then they can highly accommodate them and therefore the increased use of ICT among themselves.

The concepts of personal characteristics and adaptation had different shades of meanings. Personal characteristics referred to the individuality or personality of a human being that made that human being unique. While, adaptation meant adjustment in order to get used to or to get familiar with something. Adaptation to ICT was the dependent variable while personal characteristics were the independent variables. This meant that adaptation to ICT depends on personal characteristics. The characteristics of learners were the independent variables, which determined the dependent variable - adaptation to ICT. Hence, the independent variables are the ones that bring about adaptation to ICT through assimilation and accommodation.

Several pertinent personal traits could determine adaptation to ICT i.e. gender and age, level of intelligence (class performance), social and economic characteristics of an individual among others. These different independent factors, which exist among students in Makerere, Kyambogo, Uganda Martyrs and Kampala International Universities, determine adaptation to ICT among the students in those universities. Adaptation to ICT had several meanings like; the practical use and knowledge of ICT, innovativeness in the use of ICT, willingness to learn ICT and interest in ICT use. The researcher was to find out if these assumptions/variables explained the students' response to ICT in the aforesaid universities and to confirm whether they were the underpinnings for adaptation to ICT in learning.

ICT is a broad term, nevertheless in this research it refers to digital and analog personal and laptop computers in general plus their peripherals. The computer peripherals referred to here include hardware components like; the monitor, printer, scanner, zip drive and other data storage devices among others. ICT in this research is extended to refer to software like MS office programs and other software programs. It also concerns Local Area Network (LAN) and Wide Area Network (WAN), electronic bulletin board services, and computer conferencing systems.

The context of this research was in the aforementioned universities in Uganda. In the above aforementioned universities, there was low and inequitable adaptation to ICT as explained before by Drake (2000) in the 'dual digital divide'. The researcher investigated the relationship between personal characteristics and adaptation to ICT in those universities. In this context, personal characteristics referred to the gender, age, social-

economic level and class performance of students. While adaptation to ICT, referred to how far students adjust themselves to exploit the advantages of ICT in learning. The context of the aforementioned universities clearly shows that, students in those universities adapt ICT depending on their level of capability to assimilate and accommodate them.

According to the context in universities, though universities like Makerere formulated a university ICT policy, installed ICT equipments and ergonomic requirements, and set up a directorate for ICT support as a service unit Baryamureeba (2004) many university students never fully got adapted to ICT. This might have been because; they lacked the basic ICT skills and knowledge. Though workshops had been organized like one, which took place on 5th February sponsored by NUFFIC (2002), some of the students lacked accessibility, and sensitization on ICT. Worse still, some students were not sure whether ICT could provide enough knowledge in their learning endeavors. Hence, many students could not fully adapt ICT for learning purposes but rather for games, emailing and surfing pornography especially students who had earlier access to computers before they joined the University. In Universities of Uganda, the poor students could not raise money to use computers regularly downtown in Internet cafés, yet the ICT facilities of the University were on high demand, which involved booking and lining up for them. Many students lacked the patience to wait on queues at University computer labs for learning purposes. Many University students didn't have personal computers neither were they at their homes.

According to Nabugoomu (2001), Makerere University has made modest but significant investment in acquisition of computers, most of them desktops. These computers now approximately 1000 in number are used for document preparation and administrative

support. However, although the number of computers soared, their effective use is still far below the expected. This calls for research to establish why the ICT adaptation is low and divided on counts of social-economic, intelligence, gender and age as in the International Labor Organization research Report (2001).

1.2 Problem Statement

Although the number of ICT equipment is soaring to greater figures Baryamureeba (2004), combined with an increase in the demand for ICT knowledge and skills, universities in Kampala Region have an ineffective and an unconvincing response to ICT among students. Universities have initiated the purchase, installation and maintenance of ICT and in some academic departments like in Makerere effort has been made to provide computing facilities to students though computer laboratories are under-equipped and computing access by both students and staff is far below the expected Nabugoomu (2001). That is, the students are expected to effectively get adapted to ICT since the required resources have been installed. As Nabugoomu (2001) states, there is a problem of ineffective adaptation to ICT combined with sentiments of dissatisfaction among university students, lecturers, administrators and other stakeholders. It seems, the reasons for this discontent rotate around unfavorable students' characteristics in as far as social, economic, gender, age and levels of class performance are concerned, which act as impediments and therefore result into ineffective adaptation to ICT in learning. This forms the gist of this study. The need is to scientifically explore the challenges that arise out of students' characteristics and how these translate into either positive or negative adaptation to ICT in learning.

1.3 Purpose of the Study

The purpose of the research was to investigate and establish the relationship between students' personal characteristics and adaptation to ICT in selected universities in Uganda.

1.4 Objectives of the Study

The study was aimed at achieving the following objectives:-

a) To find out if there was a relationship between students' social - economic characteristics and adaptation to ICT in learning.

b) To establish whether there was a relationship between students' levels of class performance and adaptation to ICT in learning.

c) To investigate whether there was a relationship between students' gender and age and adaptation to ICT in learning.

1.5 Research Hypotheses

a) The social - economic characteristics of students determine their adaptation to ICT in learning.

b) The students' levels of class performance determine their adaptation to ICT in Learning.

c) The age and gender of students determine their adaptation to ICT in learning.

1.6 Research Questions

a) Do students' social - economic characteristics determine their adaptation to ICT in learning?

b) Do students' levels of class performance determine their adaptation to ICT in Learning?

c) Do students' age and gender determine their adaptation to ICT in learning?

1.7 Scope of the Study

For the geographical coverage, the boundary was; Makerere University and Kyambogo University, Uganda Martyrs University, and Kampala International University. For content coverage the study included; research on personal characteristics that determine students' use, innovativeness, interest and willingness in relation to ICT.

1.8 Significance of the Study

From the theoretical point of view, the findings of the research will be expected to register a concern for further examination of Piaget's Theory of Cognitive development. It will help university students and academicians to learn whether adaptation to learning environment depends on age and or any other personal characteristics.

The findings of the research will hopefully guide University Administrators and policy makers to improve on the current poor ICT adaptation by providing necessary prerequisites that are material/immaterial to assist the university students. That is, the students of different social, economic, intelligence, and origin will be assisted according to the empirical evidence from research.

The study will be expected to add to the already prevailing pool of knowledge base for learners and policy makers. The study will hopefully solve the problem of uncertainty in

ICT adaptation by giving empirical evidence and knowledge on adaptation to ICT and which personal factors do influence the same.

The study was expected to provide an encouragement to learners to adapt ICT in learning activities. The empirical evidences will hopefully become a guide to stakeholders in the ICT programs to work on students' attitudes towards adaptation to ICT in learning. This will assist the female students, poor performers in the teaching and learning processes and those from poor social - economic backgrounds.

Expectantly, the study will explain the current disparity in the use of computers and will give a basis for the university administrators and other stakeholders to solve the inequality in adaptation to ICT. That is, the research will explain the extent to which the use of ICT is skewed to one side because of social-economic, intelligence, age and gender factors.

CHAPTER TWO

REVIEW OF LITERATURE

2.0 Introduction

This chapter is a review of related literature on students' adaptation to ICT in learning. The review is in relation to three factors namely; the theoretical framework, conceptual framework and related literature, which are reviewed in relation to the aforesaid objectives.

2.1 Theoretical Framework

This study was based on Jean Piaget's Theory of Cognitive Development Scatterly (1987). The theory was considered appropriate because it discusses adaptation to the world, which is also very important in the discussion about adaptation to ICT. The Piaget's theory explains that adaptation to the world is a function of individual's assimilation and accommodation. Scatterly (1987) noted that, in this theory, assimilation is the process by which persons take material into their minds from the environment, which means changing the evidence of their senses to make it fit. While, accommodation is the difference made to one's mind by the process of assimilation.

Note that, assimilation and accommodation go together: you can't have one without the other. Assimilation and accommodation are two complementary processes of Adaptation described by Piaget, through which awareness of the outside world is internalized. Although one may predominate at any one moment, they are inseparable and exist in a dialectical relationship.

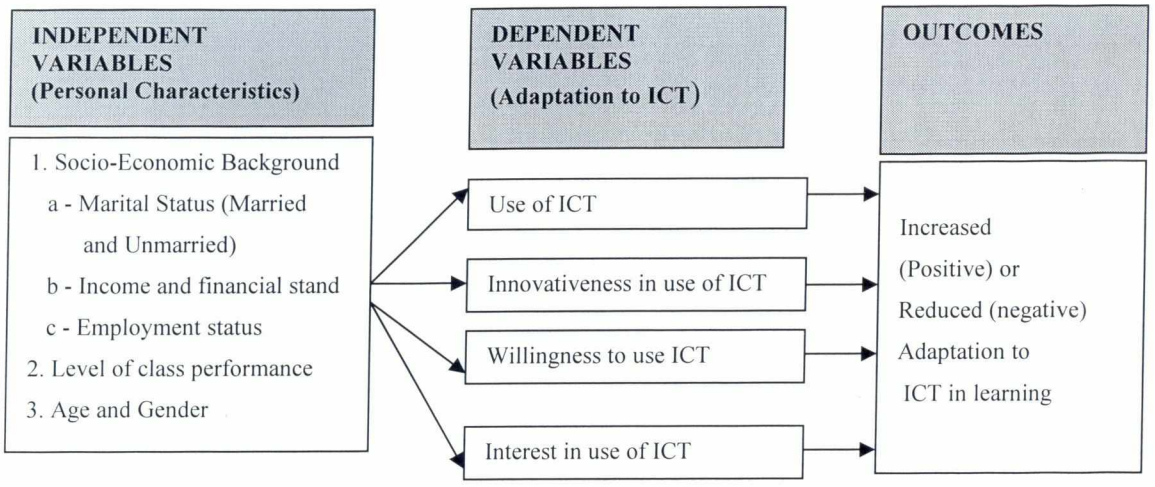
Although the Piaget's theory concentrates on children's context in respect to the way their minds work and develop, it suggests possible, general-humans' increasing capacity to understand their world: they (humans) cannot undertake certain tasks until they are psychologically mature enough to do so, not only the children but also the adults. For example, the theory states the formal operational (11 years and above) stage in which an individual thinks logically about abstract propositions and tests hypotheses systematically, becomes concerned with the hypothetical, the future, and ideological problems. Piaget also explains that adults find it difficult to adapt new staff. Since the theory is relevant to the broader spectrum of human learning, we can apply its underlying rationales to other contexts such as University students who are adults.

This therefore, made us assume that, human adaptation to the ICT world depended on their assimilation and later accommodation of ICT in their minds. In assimilation, what is perceived in the outside world in case of this research - the ICT in Kampala Universities, is incorporated into students' internal world without changing the structure of that internal world, but potentially at the cost of "squeezing" the external perceptions (i.e. ICT) to fit into students' minds, which makes the learner adapt the ICT in learning.

2.2 Conceptual Framework

The following is a conceptual model depicting a detailed graphical analysis of the interdependence of the various variables to be considered in the study.

Figure 1: A relationship of personal characteristics and adaptation to ICT in learning.



Source: Developed by the researcher in light of the illustration developed by Kakinda

F. (2000, P.199)

Interpretation of the above model

The indicated personal characteristics affected adaptation to ICT in a positive or negative manner. That is, according to the model; a student's social-economic status in light of; marital status, employment status and income level related positively or negatively to his or her adaptation to ICT. In addition, the level of class performance of a student, that is; whether a student was a high performer or a low performer, translated into either positive or negative adaptation to ICT in learning. A student's age and gender could also result into a positive and or a negative adaptation to ICT in learning. Hence, the student's characteristics in general had a bearing onto his or her increased (positive) or reduced (negative) adaptation to ICT in learning.

2.3 Review of related literature

The review of related literature is explained in light of the different aforesaid objectives.

2.3.1 Students' socio - economic traits and how they determine adaptation to ICT in learning

Initial awareness of ICT came to the university early in the late nineties. With assistance of donor funds, in 1991 Makerere University became one of the first universities in sub-Saharan Africa outside of South Africa to begin systematic use of e-mail. The Makerere University Kampala network (MUKLA), as it is called at Makerere University, used low-cost, store-and-forward software promoted by the Association for Progressive Communications. Although many faculty members and staff acquired accounts, MUKLA was an isolated project dependent on donor funding and, largely, the efforts of one individual. It was not part of a university-sponsored approach to connectivity. After the departure of the system operator, the network began to disintegrate. Scattered university staff and departments began to use the expensive private Internet Service Providers (ISPs) that were springing up in Kampala. Again, however, the approach was piecemeal and ad hoc. This partly explains an extent as to why access to ICT is lacking in the universities in Kampala region John (2005). The other extent requires investigation because to date even where the problem of bandwidth is mitigated there is unconvincing ICT adaptability.

According to John (2005), in Makerere University, all departments, institutes, faculties and schools have included the acquisition of more computers, the setting up of Local Area Networks, technical assistance and training of staff in their strategic plans. In late 2000, the university developed an ICT policy and master plan, elements that were sorely missing in its strategic planning. Approved by the university council, the policy and plan

provide a framework for academic and administrative departments to increase their ICT capacity and utilization within a university-wide system. The Directorate for ICT support was set up as a service unit, with a critical role in coordinating and supporting these efforts.

However, much as there are such efforts in universities, ICT has not taken a firm foundation in the universities among students. Reasons are not clear as to why adaptation to ICT in learning is still poor in these universities of Uganda. That is, contrary to John (2005), reasons explaining the ineffective ICT are beyond mere stocking of ICT facilities and need to be established.

Tusubira (2002), the ICT Director at Makerere University in Uganda as cited by Twinomugisha, (2002), also oversees a program of notable ICT advances, but acknowledges that he's still coping with major challenges. "The bandwidth problem will be here for some time," he says. "The fundamental challenge is that satellite access is intrinsically expensive. Twinomugisha, (2002) continues to say that for example people in America pay $500 for what our university pays $28,000 per month." The cost is not the only constraint on Internet use, Tusubira (2002) adds. According to Tusuubira (2002) "Someone in Europe can download 1,000 abstracts in a brief period of time. Here it can be two days' work. That slows down the process of research and discourages people from relying on the system." Tusubira (2002) believes that one major reason African universities have lagged so far behind in accessing the Internet is the history of authoritarian and repressive governments on the continent. "Many in the last generation of African leaders viewed mass communications as a security risk," he explains. Some current leaders do, as well. It could be dangerous to allow many people access to a communications tool like the Web that is not easily monitored or controlled. It's like

private radio stations: opposition parties can overthrow governments with that. But progress is being made. In Uganda, for instance, after much lobbying by universities and others in the ICT community, the government has agreed, in principle, to lay fiber-optic cables whenever it builds new roads. "Building a road costs $3 million per kilometer," Tusubira says. "Adding fiber optics would only be an additional $100,000 per kilometer." Such a plan is expected to be operationalized within a year. Though such efforts/advances were taken, the usability of ICT is still low among the university students and that is why it is necessary to establish other causes in addition to the cost involved in their use.

However, much as the literature above talks about university inequitable ICT adaptation in relation to social inequality, Stafford (2002) on the other hand looks at ICT inequality as being better understood by studying consumers' behavior in the home use of the Internet needs. On the contrary, for him he believes that these behaviors of ICT inequality adaptability can be categorized as follows: work at home, education, entertainment, information search, email, managing home finance, online purchase and community networking. He mainly emphasizes that inequality complexities originate from homes.

Many people noticed the relationship between students' socio-economic characteristics and adaptation to ICT. Laudon and Laudon (1998) advanced the fact that; social computer interfaces attempted to style interaction between Computers and humans after everyday human interaction. "People were more likely to use a computer if its operation required skills or behavior with which they were already familiar in their social life." They also argued that computer programs that only need to understand a restricted number of simple learned voice commands had enjoyed the most success.

In the International Labor Organization research (2001) report, it was indicated that in a "new economy" emerging? Although the rapid development of information and communication technology (ICT) represented a "revolution in the making" disparities in the diffusion and use of these new technologies risked widening the already gaping "digital divide" between technological haves and have-nots, according to the ILO's World Employment Report 2001. For the rest of the developing world, "the digital divide followed the existing fault lines of social and economic inequality and intensified prevalent patterns of social exclusion."

From the foregoing, one could conclude that, in any context or institution where ICT facilities were embraced in learning, students were highly adapted or less adapted to them depending on their socio-economic background/level. The proportion of those who were highly adapted and those who were less adapted to ICT was not clear but probably it varied from faculty to faculty and university to university in Uganda. Hence, the actual variation in the proportion of those who were highly adapted and those who were less adapted to ICT was not known and therefore needed to be established by actual survey. In the context of the research, the proportion of the students with disfavoring socio-economic characteristics in ICT adaptation was compared with those with favoring socio-economic characteristics in adaptation to ICT. If those with disfavoring socio-economic characteristics in ICT adaptation were more than those with favoring socio-economic characteristics in ICT adaptation then the ICT policies probably required complete review. If those with favoring socio-economic characteristics in ICT adaptation were more than those with disfavoring socio-economic characteristics in ICT adaptation, the ICT policies probably required just persuasions and support.

Nevertheless, other scholars disagreed with social economic characteristics as being the causes of the predicament of the variations in ICT utilization. For example, Katz's (2001) abstract empirical studies that examined psychological aspects of the use of Information and Communication Technology (ICT) have conversely indicated that instead certain psychological attitudes of students towards the use of ICT are of paramount importance when evaluating the effective use of distance learning approaches to instruction and learning. Distance learning at the tertiary level, through the medium of ICT, is seemingly affected by the same psychological attitudes that are known to be related to other successful ICT applications to learning and instruction.

2.3.2 The relationship between students' levels of class performance and adaptation to ICT

Blum (1992) maintained that; even though many of the properties of the user computer interfaces could not be included as essential features in the requirements specification, there were some human factors properties of the product that could be quantified and specified explicitly. These were; time to learn; that is - how long did it take typical target users of ICT to learn to use the ICT product for a set of relevant tasks, Retention over time - How could the users retain their knowledge or skills of ICT use over time. The periods could be hours, weeks or months and retention usually was of concern for tasks that were not part of the users' routine daily activity.

However other studies disagree with Blum (1992) by giving different findings. That is other studies discovered that, in addition to having strategic initiatives in place, supportive professional development processes and technology which is easy to use

Somekh (1998), the successful and widespread implementation of online learning in a university, as with any technological innovation in an organization, depends on the motivation of individuals. It helps to understand the motivation of your audiences and the ways in which the motivation of the innovators may differ from that of the mainstream majority. Because of these quite different findings by different researchers, research was highly necessary to establish the determinants of adaptation to ICT.

Taylor (2003) explains that, governments and other policy makers are concerned with the gap in home Internet usage between people from metropolitan and rural areas. A survey conducted in Central Queensland, Australia examined differences in ICT usage patterns between 'brilliant' and dull students, young and old, male and female, people in urban and rural areas, married and unmarried, well-educated and less educated, rich and poor, and employed and unemployed and found significant differences. These results highlight areas for further research and provide a basis for government agencies, private individuals and industries to consider these associations in future policy formulation for regional development using ICT. The research suggested that further research should be conducted to monitor consuming behaviors of ICT in the developing world (like Uganda) to establish the ICT consumption differentials.

Thus, the relationships between students' class performance (in this case intelligence) and adaptation to ICT seemed to be diverse. The actual relationships between students' performance and ICT adaptability in Universities of Kampala had to be discovered through research. It was through this research that we discovered the relationship that

exists between personal characteristics and adaptation to ICT. That is, class performance affects adaptation to ICT.

The study of the relationship between two distance learning ICT-based configurations does not agree with the fact that adaptation to ICT lends itself on one's level of intelligence. The results of this study by Kartz (2002) indicate that instead psychological attitudes held by students differentially facilitate efficient use of distance learning approaches. Satisfaction with learning, level of control of the learning process, and study motivation for distance learning are the ones positively related to the students' preferences for structured ICT-enabled distance learning, whereas independence in learning is positively connected to students' preferences for the more open Internet functionality.

2.3.3 Personal students' gender and age and adaptation to ICT in learning

According to the international labor organization research (2001) report, the digital divide, existed not only between societies but also within societies. "All the available evidence showed that Internet usage was stratified," the report said. Internet use was much more common among younger rather than older people, men rather than women, and people with higher levels of education and income. In the context of Universities in Kampala region, such conclusion probably meant that; female students, mature entry students, and fresh students within their first years in the University with lower levels of education would may be have less adaptability to ICT than their counterparts- the male, direct entry students and continuing students. The question remained whether this was true and therefore the research was required to establish it scientifically. Genry (2000) emphasized that, in assessing and promoting women's access to and use of ICT in Africa, it is important to understand the gendered nature of social, economic, policy and

technology systems which frame opportunities for women. Women's needs for information are also structured according to their gendered roles and responsibilities, which in turn influence their use of and response to ICT.

According to Zimbabwe Women's Resource Center and Network and Forum for African Educationalists (2000), strategies for women should focus on email. Studies worldwide show that, women tend to use email more than other Internet services, for reasons of time, cost and level of technical ability. The African situation lends itself more to email services generally, but again, women's situation and income tend to cluster them in the simpler technology systems.

Klawe et al (2003), analyzed that, there are some interesting patterns when we look at where and why males and females 13% versus 11% to say they have no computer in the home. In the same, data, males reported slightly higher rates of use of computer. However many of the gender differences are fairly small.

Again according to Swasti (2004), the importance of information and of technologies to transmit and disseminate information for development in Africa is well recognized. However, access for women to ICT cannot be assumed to "naturally" occur when non gender- differentiated approaches and technologies are implemented. In fact, as noted by the gender and information working groups, most of the positive effects of the 'information revolution' have bypassed women." There has been little research done on women's information needs and access to appropriate information in developing countries. While this is changing, the 'information highway' is still predominantly male-oriented, and often a forum for gender discrimination, intimidation and even harassment. The profound, gendered implications of ICT for both men and women in employment,

education, training, and other productive and personal development areas of life mean that women need encouragement and support to take their place in the information revolution. For example, the concentration of women in clerical ICT work does not translate farther up the ICT hierarchies. What will the need for increased technical and operational skill levels mean for women's employment in ICT in the future? Studies show that men continue to crowd out women's access to the training required for higher skilled work. On the other hand, women/female students in Africa are engaging in formal and informal entrepreneurial activities on a large scale: There is no doubt that women are the main economic force in developing countries." As economies become more and more information-driven, the issues of women's access to ICT will be increasingly important to Africa overall. Hence it is important to establish the reason as to why women's access to ICT is less than their counterparts the men.

Much as some literature supports gender as an ICT adaptation factor, Zappalà et al (2002) explain with some disagreement that the role of gender is unclear; they say that some studies find that females have lower take-up rates for the Internet than males while other studies find that gender plays little or no role in access to ICT. They instead accept other factors like family type whereby households with children whether university students or not are more likely to have home computers and Internet access compared to households without children. According to them, one-parent households, however, are far less likely to have access to the Internet than two-parent households.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter encompasses a summary of the research design, area and target population, sample size, sampling methodology, research instruments and data collection techniques, validity of research instruments, reliability of research instruments, research procedure, and techniques of data processing and analysis, delimitations and limitations and ethical issues.

3.1 Research design

The study used a quantitative technique. Specifically, a cross-sectional design was used to examine whether there was a relationship between personal characteristics and adaptation to ICT. The cross sectional design that was used meant that part of the population was sampled. The cross sectional design was used to obtain better results Amin (2004) and detailed information about students. It was also used because the researcher lacked resources to cover the entire population of students. It was also used because the researcher needed quantifiable data about students' adaptation to ICT in learning in a short period.

3.2 Area and Target Population

The data pertaining to the study of the relationship between students' characteristics and adaptation to ICT was collected from Makerere, Kyambogo, Uganda Martyrs and Kampala International Universities particularly among students who were exposed to ICT. Makerere University and Kyambogo University are government universities, which were established, 1970 and 2001 respectively. Both Makerere and Kyambogo

Universities are found in Kampala District and Kampala - Uganda's Capital City. These Universities have the most highly qualified academicians in Uganda. These universities are also the oldest in Uganda and East Africa. Both Makerere and Kyambogo universities are a fountain of many academic disciplines and multiplicity of courses. They are recognized at international level and they have a diversity of ethnic groups, religious denominations and nationality.

Kampala International University (KIU) is a private University, which was established, in 2001. It is also found in Kampala District in Kampala - the Capital City of Uganda with a branch in Western Uganda. This university has academic expatriates and is one of the most recently established universities. Kampala International University offers a number of courses at Bachelors' level. It is one of the private universities with the biggest proportion of foreign students from Kenya and Tanzania compared to other private universities. KIU has a diversity of ethnic groups, religious denominations and nationality.

Uganda Martyrs' University is also a private university, which was established, in the postcolonial era. It has a branch in Lubaga Division - Kampala District with the main branch in Mpigi District (Central Uganda). It is also one of the most recently established and promising Universities. Students in Uganda Martyrs' University pay the highest amounts of tuition fees compared to their counterparts in other Universities in Uganda and this ensures quality education to students. Uganda Martyrs University offers a number of courses and it is one of the private Universities with a big number of foreign students from Central Africa.

The target population was males and females at undergraduate level. The researcher's interest was vested in fresh and continuing students on both direct and mature entry programs. This was intended to elicit information from students of different age, and education level as regards different years of study. The research targeted students with diversity of characteristics including; those with high, medium and low class performance, different economic and social backgrounds, in relation to sex, age, religion, marital status and level of responsibility. The population was selected in the following way;

Table 3.1: The sampling frame

University	**Makerere**			**Kyambogo**			**U.M.U**			**K.I.U**		
Year	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3
Sample size	92	93	93	46	45	45	24	24	25	32	32	33
Total	278			136			73			97		

Key: Yr-Year, U.M.U-Uganda Martyrs' University, and K.I.U-Kampala International University

Thus, a maximum number of respondents from each representative university were expected with a given number of students from each stratum (year) as seen above. In each stratum a specific number of males and females were selected. Other universities did not replace all the universities, which were not represented. As the table indicated, the maximum number of students (respondents) expected in the whole sample was 584

3.3 Sample size

Four Universities were selected for the study. Different Sample sizes were selected from different Universities and Faculties of Information Technology (IT) or Computer Science.

Basing on Krejcie and Morgan (1970), 278 students were sampled from a population of about 1014 Bachelor of Computer Science students in Makerere University, 136 Students were sampled from a population of about 212 students of Bachelor of IT and Computing in Kyambogo University, 73 students were sampled from a population of about 90 IT students from Uganda Martyrs University and 97 students from a population of about 130 IT students in Kampala International University. Interviews were conducted for 32 students with 8 students from each selected University and faculty or Department in particular who were interviewed. These samples were enough representative of the target population.

Table 3.2: Sample sizes from given population in different Universities

University	**Population of IT/Computer Science Students**	**Sample Size**
Makerere University	1014	278
Kyambogo University	212	136
Uganda Martyrs University	90	73
Kampala International University	130	97

The last column of table 3.2 is based on Krejcie and Morgan (1970) cited by Amin (2004). The information in the second column is based on information from; Makerere University-Faculty of Computing and Information Technology website, Kyambogo University-Academic registrar's department-enrolment statistics by sex and programs 2003-2006, Uganda Martyrs' University Computer department secretaries, and Kampala International University-School of Computer Studies undergraduate degree programs Prospectus 2003/2004, 2004/2005, 2005/2006.

3.4 Sampling methodology

Stratified sampling was used on university students who were doing computer related courses because there was a big population with diversity and heterogeneity. All years at undergraduate level were represented in order to control the effect of extraneous variables like the year of study – whereby the continuing students could tend to be more familiar with computer labs and therefore access and use computers more often than their counterparts the fresh students. To limit the sample to a manageable size, a given number of male and female students were selected from each year of study in each university.

3.5 Research instruments and data collection techniques

The research instruments and data collection techniques involved the questionnaire and interviews that were used as follows;

Questionnaire

Basically the questionnaire was used, consisting of pre-coded items. The questionnaire consisted of subparts including; practical use and knowledge of ICT, students' innovativeness in the use of ICT; compatibility/ acceptability or willingness to use ICT, level of interest in ICT and socio-economic (Demographic) variables (derived from Bakkabulindi, (2005). The questionnaire instrument was selected to collect data from many respondents, that is, 584 students within the short time Kakooza (1992) that was likely to be granted, given the tight scheduled University programs of exams, lectures, and voting. It was also intended to allow respondents to answer with a large degree of freedom and convenience, given the fact that some students were non-residents who stayed quite far away and were employed. It mainly consisted of closed-ended questions in order as Sarantakos (1997) explains, to facilitate answering and quantitative data analysis.

Structured interview

The interview schedule bore open-ended questions to elicit free and spontaneous expressions and to get an opportunity to record in-depth answers on what affected students' adaptation to ICT. Interviews encompassed thirty two students with eight students from each selected University half of which males and the other for females, as Sarantakos (1997) explained, to get an opportunity to interact with the respondents and to discuss ICT matters in greater detail, so as to get a more holistic picture and to discover more intervening variables. Basically the students' leaders were interviewed. This technique was to clarify any obscure/incomprehensible motives of the research. The results of the Interview were integrated with those of the questionnaire at every end of the questionnaire results in each objective.

3.6 Validity of research instruments

Validity was a very important psychometric property of measuring adaptation to ICT, hence; the questions in the questionnaire were subjected to face validity by the supervisor. Their appropriateness and generalizability to the topic was validated by use of two raters who were experienced in the research field. The Content Validity Index (CVI) of the questionnaire was computed using the formula;

$$CVI = \frac{\text{Number of items as relevant}}{\text{Total items rated by two raters}}$$

The results were greater than 0.7 which implied that the questionnaire was valid. That is, it was 0.8882 according to the calculations in Appendix C.

For validity purposes, the objectives of the study were scrutinized by the supervisor to ensure their relevancy, aptness and appropriateness. Necessary changes were done to raise clarity, integrity and comprehensiveness with the aims of covering the relevant information about ICT adaptation in learning. A feasibility study was done to cross-examine the instruments for appropriateness, clarity, and ambiguity of items. The relevancy, validity, and context of data analysis techniques were ensured.

3.7 Reliability of research instruments

After establishing the validity of the research instruments, a pretest was done with consideration of 20 informants whose responses were analyzed using Cronbach Alpha Coefficient reliability test using the formula below.

$$\text{Reliability} = \frac{K}{K-1}\left[1-\frac{\sum Sd_i^2}{SD_t^2}\right]$$

Where; Ds_i^2 = sum of variance of individual items in the questionnaire

SD_t^2 = variance of the entire questionnaire

K = number of items in the questionnaire

According to Fraenkel (1990) if the reliability is 0.7 and above, then the questionnaire is considered reliable for research. Given the calculations from the individual items in the questionnaire, the reliability was 0.8827 according to the calculations in Appendix D meaning that the questionnaire was valid.

3.8 Research procedure

The researcher sought an introductory letter from the Dean of Education Makerere University, permission and appointments sought from the administrators of the selected faculties and schools. Questionnaires were taken to students in their respective universities.

3.9 Techniques of data processing and analysis

Data was processed and analyzed by editing and tabulating according to independent variables against dependent variables. Coding was done to check for completeness and uniformity. Distribution tables were used. The quantitative Data was tabulated and analyzed using SPSS. This package was fast and reliable enough for the many variables determining adaptation to ICT. Correlations in the three hypotheses, that is; the social - economic characteristics of students determine their adaptation to ICT, the students' levels of class performance determine their adaptation to ICT and the age and gender of students determine their adaptation to ICT was computed chi-square test of independence (Amin, 2004).Since the variables were categorical and the numerical codes used only nominal (Sarantakos, 1997), the chi square technique was appropriate.

The formula that was used is given bellow;

$$X^2 = \sum\left[\frac{(f_o - f_e)^2}{f_e}\right]$$

Where; X^2 = Chi Square value, f_o = Observed frequency, and f_e = Expected frequency.

3.10 Delimitations and Limitations

a) **Delimitations;** The weakness that was foreseen was that, the scope was limited to only four Universities in Kampala region. A small sample size was also used within the selected Universities. This was likely to cause sampling errors and reduced representative ness of the sample.

b) **Limitations;** None-response rates and Funds were the biggest constraints.

3.11 Ethical Issues

For ethical considerations, the researcher got permission from various relevant authorities. An informed consent was got in form of acceptance documents, by the informants and the researcher promised confidentially about the information from informants. For quality control purposes, the researcher selected and trained competent questionnaire guides and coders and a pilot study was done to ensure adequacy of items.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

The results that were presented, analyzed and interpreted in this chapter were organized to establish the relationship between personal characteristics and adaptation to ICT. The results were dealt with in terms of personal characteristics as independent variables and how they affect adaptation to ICT. This chapter covers each hypothesis independently.

To test whether the results were statistically significant, different statistical tools were used and these were; Chi square test of independence and Pearson product moment correlation co-efficient. The Statistical Package for Social Sciences (SPSS) program was used to analyze the data.

In this chapter, the respondents were the University Students who had had earlier exposure to ICT. That is, the students who were doing ICT related courses at Bachelor's degree level from year one to year three. An equal consideration of respondents was done according to sex and year of study. Analysis of results was done using frequencies, absolute numbers and percentages in order to present the responses that were given. Totals concerning respondents and/ or responses were shown in the last columns given both in absolute numbers and percentages.

In this chapter, it is important to note that, some characteristics that were analyzed may not seem to be personal characteristics from the direct point of view but when closely examined, they seemed to be part and parcel of personal characteristics.

4.1 Hypothesis one: The social - economic characteristics of students determine their adaptation to ICT in learning

Table 4.1: Students by university and ability to use computer hardware components and other peripherals

University	Ability to use computer hardware components and other peripherals			Total
	Low ability	Medium ability	High ability	
Makerere University	30 16.0%	46 24.5%	112 59.6%	188 100.0%
Kyambogo University	26 23.9%	37 33.9%	46 42.2%	109 100.0%
Uganda Martyrs' University	19 32.8%	24 41.4%	15 25.9%	58 100.0%
Kampala International University	9 13.0%	13 18.8%	47 68.1%	69 100.0%
Total	84 19.8%	120 28.3%	220 51.9%	424 100.0%
Chi-Square Values	$X^2_o = 31.9$ df = 6 $X^2_c = 12.6$			

Table 4.1 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 51.9% (N = 220/424), had a high ability to use computer hardware components and other peripherals. However, Kampala International University had the largest proportion of students, 68.1% (N = 47/69), who had a high ability to use computer hardware components and other peripherals. Uganda Marty's University had the largest proportion of students, 41.4% (N = 24/58), who had a moderate ability to use computer hardware components and other peripherals. It also had the largest proportion of students, 32.8% (N = 19/58), who had a low ability to use computer hardware components and other peripherals. These findings were statistically significant given that chi-square observed (X^2_o = 31.9) was greater than chi-square critical (X^2_c = 12.6) at six-

degrees of freedom (df = 6). Thus, findings suggest an association between universities and ability to use computer hardware components and other peripherals. That is, students in Kampala International University have the highest ability in using computer hardware components and other peripherals compares to students in other universities. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.2.

Table 4.2: Students by university and ability to use computer hardware components and other peripherals

University	Ability to use computer hardware components and other peripherals		
	Low ability	Medium ability	High ability
Makerere University	-1.18719	-0.9881	1.463341
Kyambogo University	0.948071	1.107441	-1.40373
Uganda Martyrs' University	2.21532	1.872098	-2.75151
Kampala International University	-1.26304	-1.4773	1.871509

Results in Table 4.2 show that standardized residuals that have a magnitude greater than 2.00, the corresponding category is considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students Uganda Martyrs' University to the low ability to use computer hardware components and other peripherals.

Table 4.3: Students by university and their ability to use computer software programs

University	Ability to use computer software programs			Total
	Low ability	Medium ability	High ability	
Makerere University	19 10.1%	56 29.8%	113 60.1%	188 100.0%
Kyambogo University	22 20.2%	53 48.6%	34 31.2%	109 100.0%
Uganda Martyrs' University	21 32.8%	19 41.4%	18 25.9%	58 100.0%
Kampala International University	7 10.1%	20 28.9%	42 60.8%	69 100.0%
Total	69 16.3%	148 34.9%	207 48.8%	424 100.0%
Chi-Square Values	$X^2_o = 46.8$ df = 6 $X^2_c = 12.6$			

Table 4.3 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 48.8% (N = 207/424), had a high ability to use computer software programs, Kampala International University had the largest proportion of students, 68.1(N = 42/69), who had a high ability to use computer software programs. Kyambogo University had the largest proportion of students, 48.6% (N = 53/109), who had a moderate ability to use computer software programs. Uganda Marty's University had the largest proportion of students, 32.8 (N = 21/58), who had a low ability to use computer software programs. These findings were statistically significant given that chi-square observed (X^2_o = 46.8) was greater than chi-square critical (X^2_c = 12.6) at six-degrees of freedom (df = 6). Thus, findings suggest an association between universities and ability to use computer software programs. That is, students in Kampala International University have the highest ability to use computer software programs compared to students in other universities. Given that chi square results were significant, the

standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.4

Table 4.4: Students by university and their ability to use computer software programs

University	Ability to use computer software programs		
	Low ability	Medium ability	High ability
Makerere University	-2.0962	-1.1879	2.21464
Kyambogo University	1.0119	2.42417	-2.634
Uganda Martyrs' University	3.76315	-0.2768	-1.9386
Kampala International University	-1.262	-0.8324	1.43241

Results in Table 4.4 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Uganda Martyrs' University to the low ability to use computer software programs, students of Kyambogo University to medium ability to use computer software programs, and students of Makerere University to high ability to use computer software programs.

Table 4.5: Students by university and their ability to use internet facilities for learning purposes

University	Ability to use internet facilities for learning purposes			Total
	Low ability	Medium ability	High ability	
Makerere University	20 10.6%	49 26.1%	119 63.3%	188 100.0%
Kyambogo University	21 19.3%	43 39.4%	45 41.3%	109 100.0%
Uganda Martyrs' University	18 31.0%	23 39.7%	17 29.3%	58 100.0%
Kampala International University	4 13.0%	17 18.8%	48 68.1%	69 100.0%
Total	63 14.9%	132 31.1%	229 54.0%	424 100.0%
Chi-Square Values	$X^2_o = 39.9$ df = 6 $X^2_c = 12.6$			

Table 4.5 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 54.0% (N = 229/424), had a high ability to use Internet facilities for learning purposes. However, Kampala International University had the largest proportion of students, 68.1% (N = 48/69), who had a high ability to use Internet facilities for learning purposes. Uganda Marty's University had the largest proportion of students, 39.7% (N = 23/58), who had a moderate ability to use Internet facilities for learning purposes. It also had the largest proportion of students, 31.0% (N = 18/58), who had a low ability to use Internet facilities for learning purposes. These findings were statistically significant given that chi-square observed ($X^2_o = 39.9$) was greater than chi-square critical ($X^2_c = 12.6$) at six-degrees of freedom (df = 6). Thus, findings suggest an association between Universities and ability to use Internet facilities for learning purposes. That is, students in Kampala International University have the highest ability to use Internet facilities for learning purposes compared to students in other Universities.

Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.6.

Table 4.6: Students by university and their ability to use Internet facilities for learning purposes

University	Ability to use internet facilities for learning purposes		
	Low ability	Medium ability	High ability
Makerere University	-1.5011	-1.2455	1.73295
Kyambogo University	1.19378	1.55632	-1.8077
Uganda Martyrs' University	3.19593	1.16334	-2.5595
Kampala International University	-1.9527	-0.9669	1.75825

Results in Table 4.6 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Uganda Martyrs' University to the low ability to use Internet facilities for learning purposes.

Table 4. 7: Students by university and their ability to use communication facilities

University	Ability to use communication facilities			Total
	Low ability	Medium ability	High ability	
Makerere University	24 12.8%	67 35.6%	97 51.6%	188 100.0%
Kyambogo University	29 26.6%	52 47.7%	28 25.7%	109 100.0%
Uganda Martyrs' University	23 39.7%	28 48.3%	7 12.1%	58 100.0%
Kampala International University	7 10.1%	18 26.1%	44 63.8%	69 100.0%
Total	83 19.6%	165 38.9%	176 41.5%	424 100.0%
Chi-Square Values	$X^2_o = 60.7$ df = 6 $X^2_c = 12.6$			

Table 4.7 is meant to present, interpret and analyze objective one which is about the relationship between students' social - economic characteristics and adaptation to ICT in

learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 41.5% (N = 176/424), had a high ability to use communication facilities. However, Kampala International University had the largest proportion of students, 63.8% (N = 44/69), who had a high ability to use communication facilities. Uganda Marty's University had the largest proportion of students, 48.3% (N = 28/58), who had a moderate ability to use communication facilities. Uganda Marty's University had also the largest proportion of students, 39.7% (N = 23/58), who had a low ability to use communication facilities. These findings were statistically significant given that chi-square observed (X^2_o = 60.7) was greater than chi-square critical (X^2_c = 12.6) at six-degrees of freedom (df = 6). Thus, findings suggest an association between Universities and ability to use communication facilities. That is, students in Kampala International University have the highest ability to use communication facilities compared to students in other Universities. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.8.

Table 4. 8: Students by university and their ability to use communication facilities

University	Ability to use communication facilities		
	Low ability	Medium ability	High ability
Makerere University	-2.1103	-0.7202	2.14653
Kyambogo University	1.65888	1.47133	-2.5638
Uganda Martyrs' University	3.45633	1.14279	-3.48
Kampala International University	-1.7705	-1.7082	2.86979

Results in Table 4.6 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Uganda Martyrs' University to the low ability to use communication facilities and students of Makerere University to high ability to use communication facilities.

Table 4.9: Students by university and their speed to adopt ICT facilities

University	Speed to adopt ICT facilities			Total
	Low ability	Medium ability	High ability	
Makerere University	34 18.1%	56 29.8%	98 52.1%	188 100.0%
Kyambogo University	37 33.9%	44 40.4%	28 25.7%	109 100.0%
Uganda Martyrs' University	22 37.9%	24 41.4%	12 20.7%	58 100.0%
Kampala International University	15 21.7%	22 31.9%	32 46.4%	69 100.0%
Total	108 25.5%	146 34.4%	170 40.1%	424 100.0%
Chi-Square Values	$X^2_o = 32.8$ df = 6 $X^2_c = 12.6$			

Table 4.9 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 40.1% (N = 170/424), had a very high Speed to adopt ICT facilities. However, Makerere University had the largest proportion of students, 52.1% (N = 98/188), who had a very high Speed to adopt ICT facilities. Uganda Marty's University had the largest proportion of students, 41.4% (N = 24/58), who had a high speed to adopt ICT facilities. Uganda Martyrs' University also had the biggest proportion of students, 37.9% (N = 22/58), who had a low Speed to adopt ICT facilities. These findings were statistically significant given that chi-square observed (X^2_o = 32.8)

was greater than chi-square critical (X^2_c = 12.6) at six-degrees of freedom (df = 6). Thus, findings suggest an association between Universities and Speed to adopt ICT facilities. That is, students in Makerere University have the highest Speed to adopt ICT facilities compared to students in other Universities. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.10.

Table 4.10: Students by university and their speed to adopt ICT facilities

University	Speed to adopt ICT facilities		
	Low ability	Medium ability	High ability
Makerere University	-2.0068	-1.0858	2.60569
Kyambogo University	1.75281	1.05559	-2.3753
Uganda Martyrs' University	1.8801	0.90139	-2.3339
Kampala International University	-0.6143	-0.361	0.82416

Results in Table 4.10 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Makerere University to their high speed to adopt ICT facilities.

Table 4. 11: Students by university and their ICT adaptable characteristics

University	An adaptable individual			Total
	Disagree	Agree	Strongly Agree	
Makerere University	10 5.3%	28 14.9%	150 79.8%	188 100.0%
Kyambogo University	7 6.4%	49 45.0%	53 48.6%	109 100.0%
Uganda Martyrs' University	8 13.8%	29 50.0%	21 36.2%	58 100.0%
Kampala International University	1 1.4%	14 20.3%	54 78.3%	69 100.0%
Total	26 6.1%	120 28.3%	278 65.6%	424 100.0%
Chi-Square Values	$X^2_o = 61.9$ df = 6 $X^2_c = 12.6$			

Table 4.11 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 65.6% (N = 278/424), strongly agree with positive ICT- related behaviors as being their attributes. However, Makerere University had the largest proportion of students, 79.8% (N = 150/188), who strongly agreed with positive ICT- related behaviors as being their individual attributes. Uganda Marty's University had the largest proportion of students, 50.0% (N = 29/58), who agreed with positive ICT-related behaviors as being their individual attributes. It also had the largest proportion of students, 13.8% (N = 8/58), who disagreed with positive ICT- related behaviors as being their attributes. These findings were statistically significant given that chi-square observed ($X^2_o = 61.9$) was greater than chi-square critical ($X^2_c = 12.6$) at six-degrees of freedom (df = 6). Thus, findings suggest an association between Universities and positive ICT related behaviors. That is students in Makerere University most strongly agreed with positive ICT- related behaviors as being their attributes compared to students in other

Universities. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.12.

Table 4.12: Students by university and their ICT adaptable characteristics

University	An adaptable individual		
	Disagree	Agree	Strongly Agree
Makerere University	-0.4501	-3.4558	2.40811
Kyambogo University	0.12224	3.26797	-2.1845
Uganda Martyrs' University	2.35612	3.10619	-2.7613
Kampala International University	-1.5708	-1.251	1.3023

Results in Table 4.12 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Uganda Martyrs' University to the their ICT non-adaptable characteristics or limited adaptable characteristics, students of Kyambogo University to their limited adaptable characteristics, and students of Makerere University to very adaptable characteristics.

Table 4.13: Students by university and their acceptability/willingness to use ICT in learning

University	Willingness to use ICT in learning			Total
	Low willingness	Medium willingness	High willingness	
Makerere University	17 9.0%	43 22,9%	128 68.1%	188 100.0%
Kyambogo University	13 11.9%	60 55.0%	36 33.0%	109 100.0%
Uganda Martyrs' University	21 36.2%	23 39.7%	14 24.1%	58 100.0%
Kampala International University	1 1.4%	17 24.6%	51 73.9%	69 100.0%
Total	52 12.3%	143 33.7%	229 54.0%	424 100.0%
Chi-Square Values	$X^2_o = 89.3$ df = 6 $X^2_c = 12.6$			

Table 4.13 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about willingness in the use of ICT in learning. It shows that most students, 54.0% (N = 229/424), had a high willingness to use ICT in learning. However, Kampala International University had the largest proportion of students, 73.9% (N = 51/69), who had a high willingness to use ICT in learning. Kyambogo University had the largest proportion of students, 55.0% (N = 60/109), who had a moderate willingness to use ICT in learning. Uganda Martyrs' University had the largest proportion of students, 36.2% (N = 21/58), who had a low willingness to use ICT in learning. These findings were statistically significant given that chi-square observed (X^2_o = 89.3) was greater than chi-square critical (X^2_c = 12.6) at six-degrees of freedom (df = 6). Thus, findings suggest an association between Universities and willingness to use ICT in learning. That is, students in Kampala International University have the highest willingness to use ICT in learning than students in other Universities. Given that chi

square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.14.

Table 4.14: Students by university and their acceptability/willingness to use ICT in learning

University	Willingness to use ICT in learning		
	Low willingness	Medium willingness	High willingness
Makerere University	-1.2613	-2.5626	2.62611
Kyambogo University	-0.1006	3.8327	-2.9807
Uganda Martyrs' University	5.20678	0.77749	-3.0955
Kampala International University	-2.5652	-1.3	2.24968

Results in Table 4.14 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Uganda Martyrs' University to their Low willingness to use ICT in learning, students of Kampala International University to some students' low and some students' high willingness to use ICT in learning, and students of Makerere University to students' high willingness to use ICT in learning.

Table 4.15: Students by university and their interest/curiosity in using desktop computers (PCs) and other hardware components

University	Level of interest in using desktop computers (PCs) and other hardware components			Total
	Low interest	Medium interest	High interest	
Makerere University	19 10.1%	54 28.7%	115 61.2%	188 100.0%
Kyambogo University	20 18.3%	52 47.7%	37 33.9%	109 100.0%
Uganda Martyrs' University	25 43.1%	22 37.9%	11 19.0%	58 100.0%
Kampala International University	8 11.6%	17 24. 6%	44 63.8%	69 100.0%
Total	72 17.0%	145 34.2%	207 48.8%	424 100.0%
Chi-Square Values	$X^2_o = 63.9$ df = 6 $X^2_c = 12.6$			

Table 4.15 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about interest in the use of ICT in learning. It shows that most students, 48.8% (N = 207/424), had a high Level of interest to use desktop computers (PCs) and other hardware components. However, Kampala International University had the largest proportion of students, 63.8% (N = 44/69), who had a high Level of interest to use desktop computers (PCs) and other hardware components. Kyambogo University had the largest proportion of students, 47.7% (N = 52/109), who had a moderate Level of interest to use desktop computers (PCs) and other hardware components. Uganda Martyrs' University had the largest proportion of students, 43.1% (N = 25/58), who had a low Level of interest to use desktop computers (PCs) and other hardware components. These findings were statistically significant given that chi-square observed ($X^2_o = 63.9$) was greater than chi-square critical ($X^2_c = 12.6$) at six-degrees of freedom (df = 6). Thus, findings suggest an association between Universities and Level of interest to use desktop computers (PCs) and other hardware components. That is, students

in Kampala International University have the highest Level of interest to use desktop computers (PCs) and other hardware components and other peripherals compared to students in other Universities. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.16.

Table 4.16: Students by university and their interest/curiosity in using desktop computers (PCs) and other hardware components

University	Level of interest in using desktop computers (PCs) and other hardware components		
	Low interest	Medium interest	High interest
Makerere University	-2.2875	-1.2836	2.4234
Kyambogo University	0.34646	2.41164	-2.2228
Uganda Martyrs' University	4.82772	0.48614	-3.2541
Kampala International University	-1.0859	-1.358	1.777

Results in Table 4.16 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students of Uganda Martyrs' University to their low interest/curiosity in using desktop computers (PCs) and other hardware components, students of Kyambogo University to their medium interest/curiosity in using desktop computers (PCs) and other hardware components, and students of Makerere University to students' high willingness to their high interest/curiosity in using desktop computers (PCs) and other hardware components.

Table 4.17: Students by qualification and their ability to use computer hardware components and other peripherals

Level of qualification	Ability to use computer hardware components and other peripherals			Total
	Low ability	Medium ability	High ability	
Certificate	12 13.6%	50 56.8%	26 29.5%	88 100.0%
Diploma	12 23.5%	32 62.7%	7 13.7%	51 100.0%
Total	24 17.3%	82 59.0%	33 23.7%	139 100.0%
Chi-Square Values	$X^2_o = 5.4$ df = 2 $X^2_c = 6.0$			

Table 4.17 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 59.0% (N = 82/139), had a moderate ability to use computer hardware components and other peripherals. However, Certificate holders had a larger proportion of students, 29.5% (N = 26/88), who had a high ability to use computer hardware components and other peripherals. Diploma holders had a larger proportion of students, 62.7% (N = 32/51), who had a moderate ability to use computer hardware components and other peripherals. The Diploma holders also had a larger proportion of students, 23.5% (N = 12/51), who had a low ability to use computer hardware components and other peripherals. These findings were not statistically significant given that chi-square observed ($X^2_o = 5.4$) was less than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest no association between Level of qualification and ability to use computer hardware components and other peripherals. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.18: Students by qualification and their ability to use computer software programs

Level of qualification	Ability to use computer software programs			Total
	Low ability	Medium ability	High ability	
Certificate	9 10.2%	59 67.0%	20 22.7%	88 100.0%
Diploma	11 21.6%	32 62.7%	8 15.7%	51 100.0%
Total	20 14.4%	91 65.5%	28 20.1%	139 100.0%
Chi-Square Values	$X^2_o = 3.8$ df = 2 $X^2_c = 6.0$			

Table 4.18 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 65.5% (N = 91/139), had a moderate ability to use computer software programs. However, Certificate holders had a larger proportion of students, 22.7% (N = 20/88), who had a high ability to use computer software programs. Certificate holders also had a larger proportion of students, 67.0% (N = 59/88), who had a moderate ability to use computer software programs. The Diploma holders had a larger proportion of students, 21.6% (N = 11/51), who had a low ability to use computer software programs. These findings were not statistically significant given that chi-square observed ($X^2_o = 3.8$) was less than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest no association between Level of qualification and ability to use computer software programs.

Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.19: Students by qualification and their ability to use internet facilities for learning purposes

Level of qualification	Ability to use internet facilities for learning purposes			Total
	Low ability	Medium ability	High ability	
Certificate	12 13.6%	58 65.9%	18 20.5%	88 100.0%
Diploma	12 23.5%	32 62.7%	7 13.7%	51 100.0%
Total	24 17.3%	90 64.7%	25 18.0%	139 100.0%
Chi-Square Values	$X^2_o = 2.7$ df = 2 $X^2_c = 6.0$			

Table 4.19 is meant to present, interpret and analyze objective one which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 64.7% (N = 90/139), had a moderate ability to use Internet facilities for learning purposes. However, Certificate holders had a larger proportion of students, 20.5% (N = 18/88), who had a high ability to use Internet facilities for learning purposes. Certificate holders also had a larger proportion of students, 65.9% (N = 58/88), who had a moderate ability to use internet facilities for learning purposes. The Diploma holders had a larger proportion of students, 23.5% (N = 12/51), who had a low ability to use Internet facilities for learning purposes. These findings were not statistically significant given that chi-square observed (X^2_o = 2.7) was less than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest no association between Level of qualification and ability to use Internet facilities for learning purposes. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.20: Students by qualification and their ability to use communication facilities

Level of qualification	Ability to use communication facilities			Total
	Low ability	Medium ability	High ability	
Certificate	14 15.9%	54 61.4%	20 22.7%	88 100.0%
Diploma	14 27.5%	30 58.8%	7 13.7%	51 100.0%
Total	28 20.1%	84 60.4%	27 19.4%	139 100.0%
Chi-Square Values	$X^2_o = 3.5$ df = 2 $X^2_c = 6.0$			

Table 4.20 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 60.4% (N = 84/139), had a moderate to use communication facilities. However, Certificate holders had a larger proportion of students, 22.7% (N = 20/88), who had a high ability to use communication facilities. Certificate holders also had a larger proportion of students, 61.4% (N = 54/88), who had a moderate ability to use communication facilities. The Diploma holders had a larger proportion of students, 27.5% (N = 14/51), who had a low ability to use communication facilities. These findings were not statistically significant given that chi-square observed ($X^2_o = 3.5$) was less than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest no association between Level of qualification and ability to use communication facilities. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.21: Students by qualification and their speed to adopt ICT facilities

Level of qualification	Speed to adopt to ICT facilities			Total
	Low speed	High speed	Very High speed	
Certificate	23 26.1%	47 53.4%	18 20.5%	88 100.0%
Diploma	11 21.6%	31 60.8%	9 17.6%	51 100.0%
Total	34 24.5%	78 56.1%	27 19.4%	139 100.0%
Chi-Square Values	$X^2_o = 0.7$ df = 2 $X^2_c = 6.0$			

Table 4.21 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 56.1% (N = 78/139), had a high Speed to adopt ICT facilities. However, Certificate holders had the largest proportion of students, 20.5% (N = 18/88), who had a very high Speed to adopt ICT facilities. Diploma holders had the largest proportion of students, 60.8% (N = 31/51), who had a high speed to adopt ICT facilities. Certificate holders had the largest proportion of students, 26.1% (N = 23/88), who had a low Speed to adopt ICT facilities. These findings were not statistically significant given that chi-square observed (X^2_o = 0.7) was less than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest no association between level of qualification and Speed to adopt ICT facilities.

Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.22: Students by qualification and their ICT adaptable characteristics

Level of qualification	an adaptable individual			Total
	Disagree	Agree	Strongly agree	
Certificate	9 10.2%	57 64.8%	22 25.0%	88 100.0%
Diploma	4 7.8%	36 70.6%	11 21.6%	51 100.0%
Total	13 9.4%	93 66.9%	33 23.7%	139 100.0%
Chi-Square Values	$X^2_o = 0.5$ df = 2 $X^2_c = 6.0$			

Table 4.22 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 66.9% (N = 93/139), agreed with positive ICT-related behaviors as being their attributes. However, Certificate holders had the largest proportion of students, 25.0% (N = 22/88), who strongly agreed with positive ICT-related behaviors as being their attributes. Diploma holders had the largest proportion of students, 70.6% (N = 36/51), who agreed with positive ICT- related behaviors as being their attributes. Certificate holders had the largest proportion of students, 10.2% (N = 9/88), who disagreed with positive ICT- related behaviors as being their attributes. These findings were not statistically significant given that chi-square observed ($X^2_o = 0.5$) was less than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest no association between level of qualification and positive ICT- related behaviors. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.23: Students by qualification and their willingness to use ICT in learning

Level of qualification	Willingness to use ICT in learning			Total
	v	Medium interest	High interest	
Certificate	13 14.8%	60 68.2%	15 17.0%	88 100.0%
Diploma	12 23.5%	33 64.7%	6 11.8%	51 100.0%
Total	25 18.0%	93 66.9%	21 15.1%	139 100.0%
Chi-Square Values	$X^2_o = 2.0$ df = 2 $X^2_c = 6.0$			

Table 4.23 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' willingness in the use of ICT in learning. It shows that most students, 66.9% (N = 93/139), had a moderate willingness to use ICT in learning. However, Certificate holders had the largest proportion of students, 17.0% (N = 15/88), who had a high willingness to use ICT in learning. Certificate holders also had the largest proportion of students, 68.2% (N = 60/88), who had a moderate willingness to use ICT in learning. Diploma holders had the largest proportion of students, 23.5% (N = 12/51), who had a low willingness to use ICT in learning. These findings were not statistically significant given that chi-square observed ($X^2_o = 2.0$) was less than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest no association between level of qualification and willingness to use ICT in learning. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.24: Students by qualification and their interest/curiosity in using desktop computers (PCs) and other hardware components

Level of qualification	Level of interest in using desktop computer (PC) and other hardware components			Total
	Low interest	Medium interest	High interest	
Certificate	15 17.0%	55 62.5%	18 20.5%	88 100.0%
Diploma	7 13.7%	37 72.5%	7 13.7%	51 100.0%
Total	22 15.8%	92 66.2%	25 18.0%	139 100.0%
Chi-Square Values	$X^2_o = 1.5$ df = 2 $X^2_c = 6.0$			

Table 4.24 is meant to present, interpret and analyze objective one which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' interest in the use of ICT in learning. It shows that most students, 66.2% (N = 92/139), had a moderate Level of interest in using desktop computers (PCs) and other hardware components. However, Certificate holders had the largest proportion of students, 20.5% (N = 18/88), who had a high Level of interest in using desktop computer (PC) and other hardware components. Diploma holders had the largest proportion of students, 72.5% (N = 37/51), who had a moderate Level of interest in using desktop computers (PCs) and other hardware components. Certificate holders had the largest proportion of students, 17.0% (N = 15/88), who had a low Level of interest in using desktop computers (PCs) and other hardware components. These findings were not statistically significant given that chi-square observed ($X^2_o = 1.5$) was less than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest no association between marital status and interest in using computer hardware components and other peripherals. Given that chi square results were not

significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.25: Students by location/ origin and their ability to use computer hardware components and other peripherals

Location/origin	Ability to use computer hardware components and other peripherals			Total
	Low ability	Medium ability	High ability	
Rural	53 28.5%	50 26.9%	83 44.6%	186 100.0%
Semi urban	20 13.5%	47 31.8%	81 54.7%	148 100.0%
Urban	11 12.2%	23 25.6%	56 62.2%	90 100.0%
Total	84 19.8%	120 28.3%	220 51.9%	424 100.0%
Chi-Square Values	$X^2_o = 17.6$ df = 4 $X^2_c = 9.5$			

Table 4.25 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 51.9% (N = 220/424), had a high ability to use computer hardware components and other peripherals. However, those who originate from Urban areas had the largest proportion of students, 62.2% (N = 56/90), who had a high ability to use computer hardware components and other peripherals. Those who originate from Semi urban areas had the largest proportion of students, 31.8% (N = 47/148), who had a moderate ability to use computer hardware components and other peripherals. Those who originate from Rural areas had the largest proportion of students, 28.5% (N = 53/186), who had a low ability to use computer hardware components and other peripherals. These findings were statistically significant given that chi-square observed (X^2_o = 17.6) was greater than chi-square critical (X^2_c = 9.5) at four-degrees of freedom (df = 4). Thus,

findings suggest an association between areas of origin and ability to use computer hardware components and other peripherals. That is, students who originate from urban areas have the highest ability to use computer hardware components and other peripherals compared to students who originate from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.26.

Table 4.26: Students by location/ origin and their ability to use computer hardware components and other peripherals

Location/origin	Ability to use computer hardware components and other peripherals		
	Low ability	Medium ability	High ability
Rural	2.66063	-0.3641	-1.3752
Semi urban	-1.7213	0.79005	0.48014
Urban	-1.6175	-0.4897	1.3612

Results in Table 4.26 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' rural location to their low ability to use computer hardware components and other peripherals.

Table 4.27: Students by location/origin and their ability to use computer software programs

Location/origin	Ability to use computer software programs			Total
	Low ability	Medium ability	High ability	
Rural	47 25.3%	76 40.9%	63 33.9%	186 100.0%
Semi urban	17 11.5%	49 33.1%	82 55.4%	148 100.0%
Urban	5 5.6%	23 25.6%	62 68.9%	90 100.0%
Total	69 16.3%	148 34.9%	207 48.8%	424 100.0%
Chi-Square Values	$X^2_o = 39.2$ df = 4 $X^2_c = 9.5$			

Table 4.27 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 48.8% (N = 207/424), had a high ability to use computer software programs. However, those who originate from urban areas had the largest proportion of students, 68.9% (N = 62/90), who had a high ability to use software programs. Those who originate from Rural areas had the largest proportion of students, 40.9% (N = 76/186), who had a moderate ability to use software programs. Those who originate from rural areas also had the largest proportion of students, 25.3% (N = 47/186), who had a low ability to use computer software programs. These findings were statistically significant given that chi-square observed ($X^2_o = 39.2$) was greater than chi-square critical ($X^2_c = 9.5$) at four -degrees of freedom (df = 4). Thus, findings suggest an association between areas of origin and ability to use computer software programs. That is, students who originate from urban areas have the highest ability to use computer software programs compared to students who originate from other areas. Given that chi

square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.28.

Table 4.28: Students by location/origin and their ability to use computer software programs

Location/origin	Ability to use computer software programs		
	Low ability	Medium ability	High ability
Rural	3.04108	1.37454	-2.918
Semi urban	-1.4436	-0.3701	1.14647
Urban	-2.5205	-1.5014	2.72475

Results in Table 4.28 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' rural location to their low their ability to use computer software programs.

Table 4.29: Students by location/origin and their ability to use Internet facilities for learning purposes

Location/origin	Ability to use internet facilities for learning purposes			Total
	Low ability	Medium ability	High ability	
Rural	42 22.6%	73 39.2%	71 38.2%	186 100.0%
Semi urban	17 11.5%	36 24.3%	95 64.2%	148 100.0%
Urban	4 4.4%	23 25.6%	63 70.0%	90 100.0%
Total	63 14.9%	132 31.1%	229 54.0%	424 100.0%
Chi-Square Values	$X^2_o = 37.9$ df = 4 $X^2_c = 9.5$			

Table 4.29 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is

intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 54.0% (N = 229/424), had a high ability to use Internet facilities for learning purposes. However, those who originate from urban areas, 70.0% (N = 63/90), had the majority of students with a high ability to use Internet facilities for learning purposes. Those who originate from semi-urban areas had the largest proportion of students, 39.2% (N = 73/186), who had a moderate ability to use Internet facilities for learning purposes. Those who originate from rural areas had the largest proportion of students, 22.6% (N = 42/186), who had a low ability to use Internet facilities for learning purposes. These findings were statistically significant given that chi-square observed (X^2_o = 37.9) was greater than chi-square critical (X^2_c = 9.5) at four-degrees of freedom (df = 4). Thus, findings suggest an association between areas of origin and ability to use Internet facilities for learning purposes. That is, students who originate from urban areas have the highest ability to use Internet facilities for learning compared to students who originate from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.30.

Table 4.30: Students by location/origin and their ability to use Internet facilities for learning purposes

Location/origin	Ability to use internet facilities for learning purposes		
	Low ability	Medium ability	High ability
Rural	2.73217	1.9836	-2.939
Semi urban	-1.0642	-1.4843	1.68513
Urban	-2.563	-0.9482	2.06419

Results in Table 4.30 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance.

Thus, the major contributor to the significance is the association of students' rural location to their low ability to use Internet facilities for learning purposes and students' urban location to their high ability to use Internet facilities for learning purposes.

Table 4.31: Students by location/origin and their ability to use communication facilities

Location/origin	Ability to use communication facilities			Total
	Low ability	Medium ability	High ability	
Rural	55 29.6%	80 43.0%	51 27.4%	186 100.0%
Semi urban	20 13.5%	57 38.5%	71 48.0%	148 100.0%
Urban	8 8.9%	28 31.1%	54 60.0%	90 100.0%
Total	83 19.6%	165 38.9%	176 41.5%	424 100.0%
Chi-Square Values	$X^2_o = 37.5$ df = 4 $X^2_c = 9.5$			

Table 4.31 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 41.5% (N = 176/424), had a high ability to use communication facilities. However, those who originate from urban areas had the largest proportion of students, 60.0 % (N = 54/90), who had a high ability to use communication facilities. Those who originate from rural areas had the largest proportion of students, 43.0% (N = 80/186), who had a moderate ability to use communication facilities. Those who originate from rural areas also had the largest proportion of students, 29.6% (N = 55/186), who had a low ability to use communication facilities. These findings were statistically significant given that chi-square observed (X^2_o = 37.5) was greater than chi-square critical (X^2_c = 9.5) at four -degrees of freedom (df = 4). Thus, findings suggest an association between

areas of origin and ability to use communication facilities. That is, students who originate from urban areas have the highest ability to use communication facilities compared to students who originate from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.32.

Table 4.32: Students by location/origin and their ability to use communication facilities

Location/origin	Ability to use communication facilities		
	Low ability	Medium ability	High ability
Rural	3.08076	0.89541	-2.9826
Semi urban	-1.6668	-0.0783	1.22047
Urban	-2.2914	-1.1868	2.72269

Results in Table 4.32 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' rural location to their low ability to use communication facilities and students' urban location to their high ability to use communication facilities.

Table 4.33: Students by location/origin and their speed to adopt ICT facilities

Location/origin	Speed to adopt ICT facilities			Total
	Low ability	Medium ability	High ability	
Rural	58 31.2%	74 39.8%	54 29.0%	186 100.0%
Semi urban	37 25.0%	36 24.3%	75 50.7%	148 100.0%
Urban	13 14.4%	36 40.0%	41 45.6%	90 100.0%
Total	108 25.5%	146 34.4%	170 40.1%	424 100.0%
Chi-Square Values	$X^2_o = 23.9$ df = 4 $X^2_c = 9.5$			

Table 4.33 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 40.1% (N = 170/424), had a very high Speed to adopt ICT facilities. However, those who originate from semi-Urban areas had the largest proportion of students, 50.7% (N = 75/148), who had a very high Speed to adopt ICT facilities. Those who originate from urban areas had the largest proportion of students, 40.0% (N = 36/90), who had a high speed to adopt ICT facilities. Those who originate from rural areas had the largest proportion of students, 31.2% (N = 58/186), who had a low Speed to adopt ICT facilities. These findings were statistically significant given that chi-square observed (X^2_o = 23.9) was greater than chi-square critical (X^2_c = 9.5) at four-degrees of freedom (df = 4). Thus, findings suggest an association between areas of origin and Speed to adopt ICT facilities. That is, students from semi-Urban areas have the highest Speed to adopt ICT facilities compared to students who originate from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.34.

Table 4.34: Students by location/origin and their speed to adopt ICT facilities

Location/origin	Speed to adopt ICT facilities		
	Low ability	Medium ability	High ability
Rural	1.54329	1.24365	-2.3826
Semi urban	-0.1137	-2.0959	2.03296
Urban	-2.0728	0.89986	0.81822

Results in Table 4.34 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' semi-urban location to their high ability in their speed to adopt ICT facilities.

Table 4.35: Students by location/origin and their ICT adaptable characteristics

Location/origin	An adaptable individual			Total
	Disagree	Agree	Strongly Agree	
Rural	18 9.7%	63 33.9%	105 56.5%	186 100.0%
Semi urban	7 4.7%	36 24.3%	105 70.9%	148 100.0%
Urban	1 1.1%	21 23.3%	68 75.6%	90 100.0%
Total	26 6.1%	120 28.3%	278 65.6%	424 100.0%
Chi-Square Values	$X^2_o = 16.0$ df = 4 $X^2_c = 9.5$			

Table 4.35 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 65.6% (N = 278/424), strongly agreed with positive ICT- related behaviors as being their attributes. However, those who originate from urban areas had the largest proportion of students, 75.6% (N = 68/90), who strongly agreed with positive ICT- related behaviors as being their attributes. Those who originate from rural areas had the largest proportion of students, 33.9% (N = 63/186), who agreed with positive ICT- related behaviors as being their attributes. Those who originate from rural areas also had the largest proportion of students, 9.7% (N = 18/186), who disagreed with positive ICT- related behaviors as being their attributes. These findings were statistically significant given that chi-square observed ($X^2_o = 16.0$) was greater than chi-square critical

(X^2_c = 9.5) at four-degrees of freedom (df = 4). Thus, findings suggest an association between areas of origin and agreement with positive ICT- related behaviors. That is, students who originate from urban areas most strongly agreed with positive ICT- related behaviors as being their attributes compared to any other students from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.36.

Table 4.36: Students by location/origin and their ICT adaptable characteristics

Location/origin	An adaptable individual		
	Disagree	Agree	Strongly Agree
Rural	1.95259	1.42768	-1.5351
Semi urban	-0.6889	-0.9096	0.80829
Urban	-1.9236	-0.886	1.17038

Results in Table 4.36 show that non of standardized residuals have a magnitude greater than 2.00, the corresponding categories are not considered a major contributor to the significance.

Table 4.37: Students by location/origin and their acceptability/willingness to use ICTs in learning

Location/origin	Willingness to use ICT in learning			Total
	Low willingness	Medium willingness	High willingness	
Rural	43 23.1%	80 43.0%	63 33.9%	186 100.0%
Semi urban	9 6.1%	54 36.5%	85 57.4%	148 100.0%
Urban		9 10.0%	81 90.0%	90 100.0%
Total	52 12.3%	143 33.7%	229 54.0%	424 100.0%
Chi-Square Values	$X^2_o = 89.5$ df = 4 $X^2_c = 9.5$			

Table 4.37 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about willingness to use ICT in learning. It shows that most students, 54.0% (N = 229/424), had a high willingness to use ICT in learning. However, those who originate from urban areas had the largest proportion of students, 90.0% (N = 81/90), who had a high willingness to use ICT in learning. Those who originate from rural areas had the largest proportion of students, 43.0% (N = 80/186), who had a moderate willingness to use ICT in learning. Those who originate from rural areas also had the largest proportion of students, 23.1% (N = 43/186), who had a low willingness to use ICT in learning. These findings were statistically significant given that chi-square observed (X^2_o = 89.5) was greater than chi-square critical (X^2_c = 9.5) at four-degrees of freedom (df = 4). Thus, findings suggest an association between areas of origin and willingness to use ICT in learning. That is, students who originate from urban areas have the highest willingness to use ICT in learning compared to students who originate from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.38.

Table 4.38: Students by location/origin and their acceptability/willingness to use ICT in learning

Location/origin	Willingness to use ICT in learning		
	Low willingness	Medium willingness	High willingness
Rural	4.227	2.18033	-3.7372
Semi urban	-2.1479	0.57818	0.56663
Urban	-3.3223	-3.8759	4.64596

Results in Table 4.38 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' rural location to their low or medium acceptability/willingness to use ICT in learning and students' urban location to their high acceptability/willingness to use ICT in learning.

Table 4.39: Students by location/origin and their interest/curiosity in using desktop computers (PCs) and other hardware components

Location/origin	Level of interest in using desktop computers (PCs) and other hardware components			Total
	Low interest	Medium Interest	High interest	
Rural	55 29.6%	69 37.1%	62 33.3%	186 100.0%
Semi urban	15 10.1%	52 35.1%	81 54.7%	148 100.0%
Urban	2 2.2%	24 26.7%	64 71.1%	90 100.0%
Total	72 17.0%	145 34.2%	207 48.8%	424 100.0%
Chi-Square Values	$X^2_o = 54.3$ df = 4 $X^2_c = 9.5$			

Table 4.24 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' interest in the use of ICT in learning. It shows that most students, 48.8% (N = 207/424), had a high Level of interest in using desktop computers (PCs) and other hardware components. However, those who originate from urban areas had the largest proportion of students, 71.1% (N = 64/90), who had a high Level of interest in using desktop computers (PCs) and other hardware components. Those who originate from rural areas had the largest proportion of students, 37.1% (N = 69/186), who had a moderate Level of interest in using desktop computers (PCs) and other hardware components. Those who originate from rural areas also had the largest

proportion of students, 29.6% (N = 55/186), who had a low Level of interest in using desktop computers (PCs) and other hardware components. These findings were statistically significant given that chi-square observed ($X^2_o = 54.3$) was greater than chi-square critical ($X^2_c = 9.5$) at four-degrees of freedom (df = 4). Thus, findings suggest an association between students' areas of origin and Level of interest in using desktop computers (PC) and other hardware components. That is, students who originate from urban areas have the highest Level of interest in using desktop computers (PCs) and other hardware components compared to students from other areas. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.40.

Table 4.40: Students by location/origin and their interest/curiosity in using desktop computers (PCs) and other hardware components

Location/origin	Level of interest in using desktop computers (PCs) and other hardware components		
	Low interest	Medium Interest	High interest
Rural	4.16635	0.67601	-3.023
Semi urban	-2.0211	0.19493	1.02882
Urban	-3.3978	-1.2218	3.02647

Results in Table 4.40 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' rural location to their low interest/curiosity in using desktop computers (PCs) and other hardware components and students' urban location to their high interest/curiosity in using desktop computers (PCs) and other hardware components.

Table 4.41: Students by marital status and their ability to use computer hardware components and other peripherals

Marital status	Ability to use computer hardware components and other peripherals			Total
	Low Ability	Medium Ability	High Ability	
Married	18 21.2%	62 72.9%	5 5.9%	85 100.0%
Unmarried	66 19.5%	197 58.1%	76 22.4%	339 100.0%
Total	84 19.8%	259 61.1%	81 19.1%	424 100.0%
Chi-Square Values	$X^2_o = 12.3$ df = 2 $X^2_c = 6.0$			

Table 4.41 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 61.1% (N = 259/424), had a moderate ability to use computer hardware components and other peripherals. However, unmarried students had a larger proportion of students, 22.4% (N = 76/339), who had a high ability to use computer hardware components and other peripherals. Married students had a larger proportion of students, 72.9% (N = 62/85), who had a moderate ability to use computer hardware components and other peripherals. The Married students also had a larger proportion of students, 21.2% (N = 18/85), who had a low ability to use computer hardware components and other peripherals. These findings were statistically significant given that chi-square observed (X^2_o = 12.3) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and ability to use computer hardware components and other peripherals. That is, unmarried students have a higher ability to use computer hardware components and other peripherals than married students. Given that chi square results were significant, the

standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.41.

Table 4.42: Students by marital status and their ability to use computer hardware components and other peripherals

Marital status	Ability to use computer hardware components and other peripherals		
	Low Ability	Medium Ability	High Ability
Married	0.28277	1.39859	-2.7889
Unmarried	-0.1416	-0.7003	1.39649

Results in Table 4.42 show that none of standardized residuals have a magnitude greater than 2.00, and thus the corresponding categories are not considered a major contributor to the significance.

Table 4.43: Students by marital status and their ability to use computer software programs

Marital status	Ability to use computer software programs			Total
	Low Ability	Medium Ability	High Ability	
Married	20 23.5%	59 69.4%	6 7.1%	85 100.0%
Unmarried	49 14.5%	221 65.2%	69 20.4%	339 100.0%
Total	69 16.3%	280 66.0%	75 17.7%	424 100.0%
Chi-Square Values	$X^2_o = 10.4$ df = 2 $X^2_c = 6.0$			

Table 4.43 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 66.0% (N =280/424), had a moderate ability to use computer

software programs. However, unmarried students had a larger proportion of students, 20.4% (N = 69/339), who had a high ability to use computer software programs. Married students had a larger proportion of students, 69.4% (N = 59/85), who had a moderate ability to use computer software programs. Married students also had a larger proportion of students, 23.5% (N = 20/85), who had a low ability to use computer software programs. These findings were statistically significant given that chi-square observed (X^2_o = 10.4) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and ability to use computer software programs. That is, unmarried students have a higher ability to use computer software programs than married students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.44.

Table 4.44: Students by marital status and their ability to use computer software programs

Marital status	Ability to use computer software programs		
	Low Ability	Medium Ability	High Ability
Married	1.65827	0.38279	-2.3302
Unmarried	-0.8304	-0.1917	1.16681

Results in Table 4.44 show that none of standardized residuals have a magnitude greater than 2.00, and thus the corresponding categories are not considered a major contributor to the significance.

Table 4.45: Students by marital status and their ability to use internet facilities for learning purposes

Marital status	Ability to use internet facilities for learning purposes			Total
	Low Ability	Medium Ability	High Ability	
Married	18 21.2%	62 72.9%	5 6.9%	85 100.0%
Unmarried	45 13.2%	208 61.4%	86 25.4%	339 100.0%
Total	63 14.9%	270 63.7%	91 21.5%	424 100.0%
Chi-Square Values	$X^2_o = 16.3$ df = 2 $X^2_c = 6.0$			

Table 4.45 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 63.7% (N = 270/424), had a high ability to use Internet facilities for learning purposes. However, unmarried students had a larger proportion of students, 25.4% (N = 86/339), who had a high ability to use Internet facilities for learning purposes. Married students had a larger proportion of students, 72.9% (N = 62/85), who had a moderate ability to use internet facilities for learning purposes. Married students also had a larger proportion of students, 21.2% (N = 18/85), who had a low ability to use internet facilities for learning purposes. These findings were statistically significant given that chi-square observed (X^2_o = 16.3) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and ability to use internet facilities for learning purposes. That is, unmarried students have a higher ability to use internet facilities for learning purposes than married students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.46.

Table 4.46: Students by marital status and their ability to use internet facilities for learning purposes

Marital status	Ability to use internet facilities for learning purposes		
	Low Ability	Medium Ability	High Ability
Married	1.51112	1.07007	-3.1005
Unmarried	-0.7567	-0.5358	1.55255

Results in Table 4.41 show that none of standardized residuals have a magnitude greater than 2.00, and thus the corresponding categories are not considered a major contributor to the significance.

Table 4.47: Students by marital status and their ability to use communication facilities

Marital status	Ability to use communication facilities			Total
	Low Ability	Medium Ability	High Ability	
Married	19 22.4%	59 69.4%	7 8.2%	85 100.0%
Unmarried	64 18.9%	210 61.9%	65 19.2%	339 100.0%
Total	83 19.6%	269 63.4%	72 17.0%	424 100.0%
Chi-Square Values	$X^2_o = 5.8$ df = 2 $X^2_c = 6.0$			

Table 4.47 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 63.4% (N = 269/424), had a moderate ability to use communication facilities. However, unmarried students had a larger proportion of students, 19.2% (N = 65/339), who had a high ability to use communication facilities. Married students had the larger proportion of students, 69.4% (N = 59/85), who had a

moderate ability to use communication facilities. Married students also had a larger proportion of students, 22.4% (N = 19/85), who had a low ability to use communication facilities. These findings were not statistically significant given that chi-square observed (X^2_o = 5.8) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest no association between marital status and ability to use communication facilities. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.48: Students by marital status and their speed to adopt ICT facilities

Marital status	Speed to adopt ICT facilities			Total
	Low speed	Medium speed	Very High speed	
Married	19 22.4%	59 69.4%	7 8.2%	85 100.0%
Unmarried	89 26.3%	188 55.5%	62 18.3%	339 100.0%
Total	108 25.5%	247 58.3%	69 16.3%	424 100.0%
Chi-Square Values	$X^2_o = 6.9$ df = 2 $X^2_c = 6.0$			

Table 4.48 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about innovativeness in the use of ICT in learning. It shows that most students, 58.3% (N = 247/424), had a high Speed to adopt ICT facilities. However, unmarried students had the larger proportion of students, 18.3% (N = 62/339), who had a very high Speed to adopt ICT facilities. Married students had the largest proportion of students, 69.4% (N = 59/85), who had a high speed to adopt ICT facilities. Unmarried students had the larger proportion of students, 26.3% (N = 89/339), who had a low Speed to adopt ICT facilities. These findings were statistically significant given that

chi-square observed (X^2_o = 6.9) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and speed to adopt ICT facilities. That is, unmarried students have a higher Speed to adopt ICT facilities than married students. Given that chi square results were not significant, the standardized residual (R) was not calculated to find out what specifically is significant.

Table 4.49: Students by marital status and their ICT adaptable characteristics

Marital status	An adaptable individual			Total
	Disagree	Agree	Strongly Agree	
Married	7 8.2%	72 84.7%	6 7.1%	85 100.0%
Unmarried	19 5.6%	218 64.3%	102 30.1%	339 100.0%
Total	26 6.1%	290 68.4%	108 25.5%	424 100.0%
Chi-Square Values	X^2_o = 19.1 df = 2 X^2_c = 6.0			

Table 4.49 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about innovativeness in the use of ICT in learning. It shows that most students, 68.4% (N = 290/424), agreed with positive ICT- related behaviors as being their attributes. However, unmarried students had the largest proportion of students, 30.1% (N = 102/339), who strongly agreed with positive ICT-related behaviors as being their attributes. Married students had the largest proportion of students, 84.7% (N = 72/85), who agreed with positive ICT- related behaviors as being their attributes. Married students also had the largest proportion of students, 8.2% (N = 7/85), who disagreed with positive ICT- related behaviors as being their attributes. These findings were statistically significant given that chi-square observed (X^2_o = 19.1) was

greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and agreement with positive ICT-related behaviors. That is, unmarried students more agreed with positive ICT- related behaviors as being their attributes than married ones. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.50.

Table 4.50: Students by marital status and their ICT adaptable characteristics

Marital status	An adaptable individual		
	Disagree	Agree	Strongly Agree
Married	0.78305	1.81819	-3.3636
Unmarried	-0.3921	-0.9104	1.68427

Results in Table 4.50 show that none of standardized residuals have a magnitude greater than 2.00, and thus the corresponding categories are not considered a major contributor to the significance.

Table 4.51: Students by marital status and their acceptability/willingness to use ICT in learning

Marital status	Willingness to use ICT in learning			Total
	Low willingness	Medium willingness	High willingness	
Married	14 16.5%	63 74.1%	8 9.4%	85 100.0%
Unmarried	38 11.2%	217 64.0%	84 24.8%	339 100.0%
Total	52 12.3%	280 66.0%	92 21.7%	424 100.0%
Chi-Square Values	$X^2_o = 10.0$ df = 2 $X^2_c = 6.0$			

Table 4.51 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is

intended to answer the question about willingness in the use of ICT in learning. It shows that most students, 66.0% (N = 280/424), had a moderate willingness to use ICT in learning. However, unmarried students had the largest proportion of students, 24.8% (N = 84/339), who had a high willingness to use ICT in learning. Married students had the largest proportion of students, 74.1% (N = 63/85), who had a moderate willingness to use ICT in learning. Married students had the largest proportion of students, 16.5% (N = 14/85), who had a low willingness to use ICT in learning. These findings were statistically significant given that chi-square observed (X^2_o = 10.0) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and willingness to use ICT in learning. That is, unmarried students have a higher willingness to use ICT in learning than married students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.52.

Table 4.52: Students by marital status and their acceptability/willingness to use ICT in learning

Marital status	Willingness to use ICT in learning		
	Low willingness	Medium willingness	High willingness
Married	1.1074	0.91668	-2.4318
Unmarried	-0.5545	-0.459	1.21767

Results in Table 4.52 show that none of standardized residuals have a magnitude greater than 2.00, and thus the corresponding categories are not considered a major contributor to the significance.

Table 4.53: Students by marital status and their interest/curiosity in using desktop computers (PCs) and other hardware components

Marital status	Level of interest in using desktop computers (PCs) and other hardware components			Total
	Low interest	Medium interest	High interest	
Married	17 20.0%	60 70.6%	8 9.4%	85 100.0%
Unmarried	55 16.2%	211 62.2%	73 21.5%	339 100.0%
Total	72 17.0%	271 63.9%	81 19.1%	424 100.0%
Chi-Square Values	$X^2_o = 6.5$ df = 2 $X^2_c = 6.0$			

Table 4.53 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about interest in the use of ICT in learning. It shows that most students, 63.9% (N = 271/424), had a moderate Level of interest in using desktop computers (PCs) and other hardware components. However, unmarried students had the largest proportion of students, 21.5% (N = 73/339), who had a high Level of interest in using desktop computer (PC) and other hardware components. Married students had the largest proportion of students, 70.6% (N = 60/85), who had a moderate Level of interest in using desktop computers (PCs) and other hardware components. Married students had the largest proportion of students, 20.0% (N = 17/85), who had a low Level of interest in using desktop computers (PCs) and other hardware components. These findings were statistically significant given that chi-square observed ($X^2_o = 6.5$) was greater than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest an association between marital status and interest in using computer hardware components and other peripherals. That is, unmarried students have a higher Level of interest in using desktop computers (PCs) and other hardware components than married students. Given

that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.54.

Table 4.54: Students by marital status and their interest/curiosity in using desktop computers (PCs) and other hardware components

Marital status	Level of interest in using desktop computers (PCs) and other hardware components		
	Low interest	Medium interest	High interest
Married	0.67541	0.76955	-2.0444
Unmarried	-0.3382	-0.3853	1.0237

Results in Table 4.54 show that none of standardized residuals have a magnitude greater than 2.00, and thus the corresponding categories are not considered a major contributor to the significance.

Table 4.55: Students by employment status and their ability to use computer hardware components and other peripherals

Employment status	Ability to use computer hardware components and other peripherals			Total
	Low Ability	Medium Ability	High Ability	
Employed	37 27.6%	81 60.4%	16 11.9%	134 100.0%
Unemployed	47 16.2%	178 61.4%	65 22.4%	290 100.0%
Total	84 19.8%	259 61.1%	81 19.1%	424 100.0%
Chi-Square Values	$X^2_o = 11.3$ df = 2 $X^2_c = 6.0$			

Table 4.55 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. . In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 61.1% (N = 259/424), had a moderate ability to use computer

hardware components and other peripherals. However, unemployed students had the largest proportion of students, 22.4% (N = 65/290), who had a high ability to use computer hardware components and other peripherals. Unemployed students also had the largest proportion of students, 61.4% (N = 178/290), who had a moderate ability to use computer hardware components and other peripherals. The employed students had the largest proportion of students, 27.6% (N = 37/134), who had a low ability to use computer hardware components and other peripherals. These findings were statistically significant given that chi-square observed (X^2_o = 11.3) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and ability to use computer hardware components and other peripherals. That is, unemployed students have a higher ability to use computer hardware components and other peripherals than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.56.

Table 4.56: Students by employment status and their ability to use computer hardware components and other peripherals

Employment status	Ability to use computer hardware components and other peripherals		
	Low Ability	Medium Ability	High Ability
Employed	2.02873	-0.0944	-1.8972
Unemployed	-1.379	0.06415	1.28964

Results in Table 4.56 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their low their ability to use computer hardware components and other peripherals.

Table 4.57: Students by employment status and their ability to use computer software programs

Employment status	Ability to use computer software programs			Total
	Low Ability	Medium Ability	High Ability	
Employed	35 26.1%	87 64.9%	12 9.0%	134 100.0%
Unemployed	34 11.7%	193 66.6%	63 21.7%	290 100.0%
Total	69 16.3%	280 66.0%	75 17.7%	424 100.0%
Chi-Square Values	$X^2_o = 20.2$ df = 2 $X^2_c = 6.0$			

Table 4.57 is meant to present, interpret and analyze objective one which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region.. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 66.0% (N = 280/424), had a moderate ability to use computer software programs. However, unemployed students had the largest proportion of students, 21.7% (N = 63/290), who had a high ability to use computer software programs. Unemployed students had the largest proportion of students, 66.6% (N 193/290), who had

a moderate ability to use computer software programs. The employed students had the largest proportion of students, 26.1% (N = 35/134), who had a low ability to use computer software programs. These findings were statistically significant given that chi-square observed (X^2_o = 20.2) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and ability to use computer software programs. That is, unemployed students have a higher ability in using computer software programs than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.58.

Table 4.58: Students by employment status and their ability to use computer software programs

Employment status	Ability to use computer software programs		
	Low Ability	Medium Ability	High Ability
Employed	2.82529	-0.1585	-2.4038
Unemployed	-1.9205	0.10771	1.63397

Results in Table 4.58 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their low their ability to use computer software programs.

Table 4.59: Students by employment status and their ability to use internet facilities for learning purposes

Employment status	Ability to use internet facilities for learning purposes			Total
	Low Ability	Medium Ability	High Ability	
Employed	32 23.9%	87 64.9%	15 11.2%	134 100.0%
Unemployed	31 10.7%	183 63.1%	76 26.2%	290 100.0%
Total	63 14.9%	270 63.7%	91 21.5%	424 100.0%
Chi-Square Values	$X^2_o = 20.4$ df = 2 $X^2_c = 6.0$			

Table 4.35 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. . In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 63.7% (N = 270/424), had a high ability to use Internet facilities for learning purposes. However, unemployed students had the largest proportion of students, 26.2% (N = 76/290), who had a high ability to use Internet facilities for learning purposes. The employed students had the largest proportion of students, 64.9% (N = 87/134), who had a moderate ability to use Internet facilities for learning purposes. It also had the largest proportion of students, 23.9% (N = 32/134), who had a low ability to use Internet facilities for learning purposes. These findings were statistically significant given that chi-square observed (X^2_o = 20.4) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and ability to use Internet facilities for learning purposes. That is, unemployed students have a higher ability to use Internet facilities for learning purposes than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.60.

Table 4.60: Students by employment status and their ability to use Internet facilities for learning purposes

Employment status	Ability to use internet facilities for learning purposes		
	Low Ability	Medium Ability	High Ability
Employed	2.7094	0.18077	-2.5657
Unemployed	-1.8417	-0.1229	1.74407

Results in Table 4.60 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their low their ability to use Internet facilities for learning purposes.

Table 4.61: Students by employment status and their ability to use communication facilities

Employment status	Ability to use communication facilities			Total
	Low Ability	Medium Ability	High Ability	
Employed	40 29.9%	82 61.2%	12 9.0%	134 100.0%
Unemployed	43 14.8%	187 64.5%	60 20.7%	290 100.0%
Total	83 19.6%	269 63.4%	72 17.0%	424 100.0%
Chi-Square Values	$X^2_o = 18.2$ df = 2 $X^2_c = 6.0$			

Table 4.61 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 63.4% (N = 269/424), had a moderate ability to use communication facilities. However, unemployed students had the largest proportion of students, 20.7% (N = 60/290), who had a high ability to use communication facilities. The

unemployed students had the largest proportion of students, 64.5% (N = 187/290), who had a moderate ability to use communication facilities. The employed had the largest proportion of students, 29.9% (N = 40/134), who had a low ability to use communication facilities. These findings were statistically significant given that chi-square observed (X^2_o = 18.2) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and ability to use communication facilities. That is, unemployed students have a higher ability to use communication facilities than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.62.

Table 4.62: Students by employment status and their ability to use communication facilities

Employment status	Ability to use communication facilities		
	Low Ability	Medium Ability	High Ability
Employed	2.68837	-0.3269	-2.2546
Unemployed	-1.8274	0.22221	1.53256

Results in Table 4.62 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their low their ability to use communication facilities.

Table 4.63: Students by employment status and their speed to adopt ICT facilities

Employment status	Speed to adopt ICT facilities			Total
	Low speed	High speed	Very High speed	
Employed	48 35.8%	74 55.2%	12 9.0%	134 100.0%
Unemployed	60 20.7%	173 59.7%	57 19.7%	290 100.0%
Total	108 25.5%	247 58.3%	69 16.3%	424 100.0%
Chi-Square Values	$X^2_o = 15.0$ df = 2 $X^2_c = 6.0$			

Table 4.63 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about innovativeness in the use of ICT in learning. It shows that most students, 58.3% (N = 247/424), had a high Speed to adopt ICT facilities. However, unemployed students had the largest proportion of students, 19.7% (N = 57/290), who had a very high Speed to adopt ICT facilities. Unemployed students also had the largest proportion of students, 59.7% (N = 173/290), who had a high speed to adopt ICT facilities. The employed students had the largest proportion of students, 35.8 %(N = 48/134), who had a low Speed to adopt ICT facilities. These findings were statistically significant given that chi-square observed (X^2_o = 15.0) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and Speed to adopt ICT facilities. That is, unemployed students have a higher Speed to adopt ICT facilities than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.64.

Table 4.64: Students by employment status and their speed to adopt ICT facilities

Employment status	Speed to adopt ICT facilities		
	Low speed	High speed	Very High speed
Employed	2.37372	-0.4597	-2.1
Unemployed	-1.6136	0.31247	1.42751

Results in Table 4.64 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their low speed to adopt ICT facilities.

Table 4.65: Students by employment status and their ICT adaptable characteristics

Employment status	An adaptable individual			Total
	Disagree	Agree	Strongly Agree	
Employed	16 11.9%	96 71.6%	22 16.4%	134 100.0%
Unemployed	10 3.4%	194 66.9%	86 29.7%	290 100.0%
Total	26 6.1%	290 68.4%	108 25.5%	424 100.0%
Chi-Square Values	$X^2_o = 17.4$ df = 2 $X^2_c = 6.0$			

Table 4.65 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about innovativeness in the use of ICTs in learning. It shows that most students, 68.4% (N = 290/424), agree with positive ICT- related behaviors as being their attributes. However, unemployed students had the largest proportion of students, 29.7% (N = 86/290), who strongly agreed with positive ICT-related behaviors as being their attributes. The employed students had the largest proportion of students, 71.6% (N = 96/134), who agreed with positive ICT- related behaviors as being their attributes. The employed students also had the largest proportion

of students, 11.9% (N = 16/134), who disagreed with positive ICT- related behaviors as being their attributes. These findings were statistically significant given that chi-square observed (X^2_o = 17.4) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and agreement with positive ICT- related behaviors as being their attributes. That is, unemployed students more strongly agreed with positive ICT- related behaviors as being their attributes than the employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.66.

Table 4.66: Students by employment status and their ICT adaptable characteristics

Employment status	An adaptable individual		
	Disagree	Agree	Strongly Agree
Employed	2.71514	0.45428	-2.0766
Unemployed	-1.8456	-0.3088	1.41159

Results in Table 4.66 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their lacking ICT adaptable characteristics

Table 4.67: Students by employment status and their acceptability/willingness to use ICT in learning

Employment status	Willingness to use ICT in learning			Total
	Low willingness	Medium willingness	High willingness	
Employed	30 22.4%	90 67.2%	14 10.4%	134 100.0%
Unemployed	22 7.6%	190 65.5%	78 26.9%	290 100.0%
Total	52 12.3%	280 66.0%	92 21.7%	424 100.0%
Chi-Square Values	$X^2_o = 27.8$ df = 2 $X^2_c = 6.0$			

Table 4.67 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about willingness in the use of ICT in learning. It shows that most students, 66.0% (N = 280/424), had a moderate willingness to use ICT in learning. However, unemployed students had the largest proportion of students, 26.9% (N = 78/290), who had a high willingness to use ICT in learning. The employed students had the largest proportion of students, 67.2% (N = 90/134), who had a moderate willingness to use ICT in learning. The employed students also had the largest proportion of students, 22.4% (N = 30/134), who had a low willingness to use ICT in learning. These findings were statistically significant given that chi-square observed ($X^2_o = 27.8$) was greater than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and willingness to use ICT in learning. That is, unemployed students have a higher willingness to use ICT in learning than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.68.

Table 4.68: Students by employment status and their acceptability/willingness to use ICT in learning

Employment status	Willingness to use ICT in learning		
	Low willingness	Medium willingness	High willingness
Employed	3.34643	0.16046	-2.7958
Unemployed	-2.2748	-0.1091	1.90047

Results in Table 4.68 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of students' employed to their low acceptability/willingness to use ICT in learning.

Table 4.69: Students by employment status and their interest/curiosity in using desktop computers (PCs) and other hardware components

Employment status	Level of interest in using desktop computers (PCs) and other hardware components			Total
	Low interest	Medium interest	High interest	
Employed	30 22.4%	89 66.4%	15 11.2%	134 100.0%
Unemployed	42 14.5%	182 62.8%	66 22.8%	290 100.0%
Total	72 17.0%	271 63.9%	81 19.1%	424 100.0%
Chi-Square Values	$X^2_o = 10.0$ df = 2 $X^2_c = 6.0$			

Table 4.69 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about interest in the use of ICT in learning. It shows that most students, 63.9% (N = 271/424), had a moderate Level of interest to use desktop computers (PCs) and other hardware components. However, unemployed students had the largest proportion of students, 22.8% (N = 66/290), who had a high Level of interest to use desktop computers (PCs) and other hardware components. The employed students

had the largest proportion of students, 66.4% (N = 89/134), who had a moderate Level of interest to use desktop computers (PCs) and other hardware components. The employed students also had the largest proportion of students, 22.4% (N = 30/134), who had a low Level of interest to use desktop computers (PCs) and other hardware components. These findings were statistically significant given that chi-square observed (X^2_o = 10.0) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between employment status and Level of interest to use desktop computers (PCs) and other hardware components. That is, unemployed students have a higher Level of interest to use desktop computers (PCs) and other peripherals than employed students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.70.

Table 4.70: Students by employment status and their interest/curiosity in using desktop computers (PCs) and other hardware components

Employment status	Level of interest in using desktop computers (PCs) and other hardware components		
	Low interest	Medium interest	High interest
Employed	1.51887	0.36239	-2.0949
Unemployed	-1.0325	-0.2463	1.424

Results in Table 4.70 show that no standardized residuals that have a magnitude greater than 2.00, thus the corresponding categories are not considered a major contributor to the significance.

Table 4.71: Students by social economic characteristics and their adaptation to ICT in learning- Correlations using Pearson Correlation

	Income level	Social status	Type of primary school	Type of O'level school	Type of A'level school
Ability to use computer hardware components and other peripherals	r = .406 p = .000 N = 424	r = .198 p = .000 N = 424	r = .104 p = .000 N = 424	r = .218 p = .000 N = 424	r = .274 p = .000 N = 424
Ability to use computer software programs	r = .438 p = .000 N = 424	r = .213 p = .000 N = 424	r = .085 p = .079 N = 424	r = .245 p = .000 N = 424	r = .364 p = .000 N = 424
Ability to use internet facilities for learning purposes	r = .452 p = .000 N = 424	r = .186 p = .000 N = 424	r = .059 p = .224 N = 424	r = .221 p = .000 N = 424	r = .317 p = .000 N = 424
Ability to use communication facilities	r = .372 p = .000 N = 424	r = .173 p = .000 N = 424	r = .039 p = .422 N = 424	r = .233 p = .000 N = 424	r = .340 p = .000 N = 424
Speed to adopt to ICT facilities	r = .417 p = .000 N = 424	r = .181 p = .000 N = 424	r = .103 p = .033 N = 424	r = .247 p = .000 N = 424	r = .253 p = .000 N = 424
An adaptable individual	r = .599 p = .000 N = 424	r = .235 p = .000 N = 424	r = .121 p = .013 N = 424	r = .184 p = .000 N = 424	r = .177 p = .000 N = 424
Acceptability/willingness to use ICT in learning	r = .525 p = .000 N = 424	r = .206 p = .000 N = 424	r = .099 p = .041 N = 424	r = .222 p = .000 N = 424	r = .234 p = .000 N = 424
Level of interest/curiosity in using ICT in learning	r = .415 p = .000 N = 424	r = .230 p = .000 N = 424	r = .074 p = .126 N = 424	r = .190 p = .000 N = 424	r = .247 p = .000 N = 424

In the questionnaire, this table is intended to answer the question about social-economic characteristics of students and adaptation to ICT in learning.

Income level and ability to use computer hardware components and other peripherals

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .406) between income level and ability to use computer hardware components and other peripherals. This correlation was significant given that its

significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a moderate positive relationship between income level and ability to use computer hardware components and other peripherals. The positive relationship implies that as one's level of income increases, so does his/her ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is moderate in that a change in one's income level results into a moderate change in his/her ability to use computer hardware components and other peripherals.

Social status and ability to use computer hardware components and other peripherals

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .198) between social status and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between social status and ability to use computer hardware components and other peripherals. The positive relationship implies that as one's social status improves, so does his/her ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is very weak in that a change in one's social status results into a very weak change in his/her ability to use computer hardware components and other peripherals.

Primary school status and ability to use computer hardware components and other peripherals

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .104) between type of primary school and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between type of primary school and ability to use computer hardware components and other peripherals. The positive relationship implies that studying from well equipped primary schools (with computer facilities), has a positive effect on ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is very weak in that, studying from well-equipped primary schools results into a very weak effect in students' ability to use computer hardware components and other peripherals.

O-level secondary school status and ability to use computer hardware components and other peripherals

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .218) between type of O-level secondary school and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of O-level

secondary school and ability to use computer hardware components and other peripherals. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities), has a positive effect on ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is weak in that, studying from well-equipped O-level secondary schools results into a weak effect in students' ability to use computer hardware components and other peripherals.

A-level secondary school status and ability to use computer hardware components and other peripherals

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .272$) between type of A-level secondary school and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of A-level secondary school and ability to use computer hardware components and other peripherals. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect in ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is weak in that, studying from well-equipped A-level secondary schools results into a weak effect in students' ability to use computer hardware components and other peripherals.

Income level and ability to use computer software programs

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .438) between income level and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a moderate positive relationship between income level and ability to use computer software programs. The positive relationship implies that as one's level of income increases, so does his/her ability to use computer software programs, and vice versa. However, this relationship is moderate in that a change in one's income level results into a moderate change in his/her ability to use computer software programs.

Social status and ability to use computer software programs

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .213) between social status and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between social status and ability to use computer software programs. The positive relationship implies that as one's social status improves, so does his/her ability to use computer software programs, and vice versa. However, this relationship is weak in

that a change in one's social status results into a weak change in his/her ability to use computer software programs.

Primary school status and ability to use computer software programs

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .085) between type of primary school and ability to use computer software programs. This correlation was not significant given that its significance level (p = .079) was greater than the critical significance level at .05. Because of this, this shows that there is no relationship between type of primary school and ability to use computer software programs. The lack of relationship implies that studying from a well equipped primary schools (with computer facilities), has no positive effect on ability to use computer software programs, and vice versa.

O-level secondary school status and ability to use computer software programs

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .245) between type of O-level secondary school and ability to use computer software components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of O-level secondary school and ability to use software programs. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities),

has a positive effect on ability to use software programs, and vice versa. However, this relationship is weak in that, studying from well-equipped O-level secondary schools results into a weak effect in students' ability to use computer software programs.

A-level secondary school status and ability to use software programs

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .364) between type of A-level secondary school and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of A-level secondary school and ability to use computer software programs. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect in ability to use computer software programs, and vice versa. However, this relationship is weak in that, studying from well-equipped A-level secondary schools results into a weak effect in students' ability to use computer software programs.

Income level and ability to use internet facilities for learning purposes

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .452) between income level and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that

there is a moderate positive relationship between income level and ability to use internet facilities for learning purposes. The positive relationship implies that as one's level of income increases, so does his/her ability to use Internet facilities for learning purposes, and vice versa. However, this relationship is moderate in that a change in one's income level results into a moderate change in his/her ability to use Internet facilities for learning purposes.

Social status and ability to use Internet facilities for learning purposes

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .186) between social status and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between social status and ability to use Internet facilities for learning purposes. The positive relationship implies that as one's social status improves, so does his/her ability to use Internet facilities for learning purposes, and vice versa. However, this relationship is very weak in that a change in one's social status results into a very weak change in his/her ability to use Internet facilities for learning purposes.

Primary school status and ability to use Internet facilities for learning purposes

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive

correlation (r = .059) between type of primary school and ability to use Internet facilities for learning purposes. This correlation was not significant given that its significance level (p = .224) was greater than the critical significance level at .05. Because of this, this shows that there is no relationship between type of primary school and ability to use Internet facilities for learning purposes. The absence of relationship implies that studying from more equipped primary schools (with computer facilities), has no positive effect on ability to use internet facilities for learning purposes, and vice versa.

O-level secondary school status and ability to use internet facilities for learning purposes

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .221) between type of O-level secondary school and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of O-level secondary school and ability to use Internet facilities for learning purposes. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities), has a positive effect on ability to use internet facilities for learning purposes, and vice versa. However, this relationship is weak in that, studying from well-equipped O-level secondary schools results into a weak effect on students' ability to use Internet facilities for learning purposes.

A-level secondary school status and ability to use internet facilities for learning purposes

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .317) between type of A-level secondary school and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of A-level secondary school and ability to use Internet facilities for learning purposes. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect in ability to use internet facilities for learning purposes, and vice versa. However, this relationship is weak in that, studying from well-equipped A-level secondary schools results into a weak effect in students' ability to use internet facilities for learning purposes.

Income level and ability to use communication facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .372) between income level and ability to use communication facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between income level and ability to use communication facilities. The positive relationship implies that as one's level of income increases, so does his/her

ability to use communication facilities, and vice versa. However, this relationship is weak in that a change in one's income level results into a weak change in his/her ability to use communication facilities.

Social status and ability to use communication facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation ($r = .173$) between social status and ability to use communication facilities. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between social status and ability to use communication facilities. The positive relationship implies that as one's social status improves, so does his/her ability to use communication facilities, and vice versa. However, this relationship is very weak in that a change in one's social status results into a very weak change in his/her ability to use communication facilities.

Primary school status and ability to use communication facilities

Table 4.71 is meant to present, interpret and analyze objective one which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation ($r = .039$) between type of primary school and ability to use communication facilities. This correlation was not significant given that its significance level ($p = .422$) was greater than the critical significance level at .05. Because of this, this shows that there is no relationship between type of primary schools and ability to use communication

facilities. The absence of positive relationship implies that studying from well equipped primary school (with computer facilities), has no positive effect on ability to use communication facilities, and vice versa.

O-level secondary school status and ability to use communication facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .233$) between type of O-level secondary school and ability to use communication facilities. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of O-level secondary school and ability to use communication facilities. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities), has a positive effect on ability to use communication facilities, and vice versa. However, this relationship is weak in that, studying from well-equipped O-level secondary schools results into a weak effect in students' ability to use communication facilities.

A-level secondary school status and ability to use communication facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .340$) between type of A-level secondary school and ability to use communication facilities. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a

weak positive relationship between type of A-level secondary school and ability to use communication facilities. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect in ability to use communication facilities, and vice versa. However, this relationship is weak in that, studying from well-equipped A-level secondary schools results into a weak effect in students' ability to use communication facilities.

Income level and speed to adopt ICT facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .417) between income level and speed to adopt ICT facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a moderate positive relationship between income level and speed to adopt ICT facilities. The positive relationship implies that as one's level of income increases, so does his/her speed to adopt ICT facilities, and vice versa. However, this relationship is moderate in that a change in one's income level results into a moderate change in his/her speed to adopt ICT facilities.

Social status and speed to Adopt ICT facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .181) between social status and speed to adopt ICT facilities. This correlation was significant given that its significance level (p = .000) was less than the

critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between social status and speed to adopt ICT facilities. The positive relationship implies that as one's social status improves so does his/her speed to Adopt ICT facilities. However, this relationship is very weak in that a change in one's social status results into a very weak change in his/her speed to adopt ICT facilities.

Primary school status and speed to adopt ICT facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation ($r = .103$) between type of primary school and speed to adopt ICT facilities. This correlation was significant given that its significance level ($p = .033$) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between type of primary school and speed to adopt ICT facilities. The positive relationship implies that studying from well equipped primary schools (with computer facilities), has a positive effect on speed to adopt ICT facilities, and vice versa. However, this relationship is very weak in that, studying from well-equipped primary schools results into a very weak effect in students' speed to adopt ICT facilities.

O-level secondary school status and speed to adopt ICT facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .247$) between type of O-level secondary school and speed to adopt ICT facilities. This correlation was significant given that its significance level ($p = .000$) was less than

the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of O-level secondary schools and speed to adopt ICT facilities. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities), has a positive effect on speed to adopt ICT facilities, and vice versa. However, this relationship is weak in that, studying from well-equipped O-level secondary schools results into a weak effect in students' speed to adopt ICT facilities.

A-level secondary school status and speed to Adopt ICT facilities

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .253$) between type of A-level secondary school and speed to adopt ICT facilities. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of A-level secondary school and speed to adopt ICT facilities. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect on speed to adopt ICT facilities, and vice versa. However, this relationship is weak in that, studying from well-equipped A-level secondary schools results into a weak effect on students' speed to adopt ICT facilities.

Income level and an adaptable individual

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in

learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .599) between income level and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a moderate positive relationship between income level and students' positive ICT- related attributes. The positive relationship implies that as one's level of income increases, so does his/her increased or decreased acceptance of positive ICT- related attributes, and vice versa. However, this relationship is moderate in that a change in one's income level results into a moderate change in acceptance of positive ICT- related attributes.

Social status and an adaptable individual

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .235) between social status and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between social status and students' positive ICT- related attributes. The positive relationship implies that as one's social status improves, so does his/her increased acceptance of positive ICT- related attributes, and vice versa. However, this relationship is weak in that a change in one's social status results into a weak change in acceptance of positive ICT- related attributes.

Primary school status and an adaptable individual

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .121) between type of primary school and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .013) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between type of primary school and students' positive ICT- related attributes. The positive relationship implies that studying from well equipped primary schools (with computer facilities), has a positive effect on students' positive ICT-related attributes, and vice versa. However, this relationship is very weak in that, studying from well-equipped primary schools results into a very weak effect on students' positive ICT- related attributes.

O-level secondary school status and an adaptable individual

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .184) between type of O-level secondary school and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between type of O-level secondary school and students' positive ICT- related attributes. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities), has a positive effect on students' positive ICT- related attributes, and vice versa. However, this

relationship is weak in that, studying from well-equipped O-level secondary schools results into a very weak effect on students' positive ICT- related attributes.

A-level secondary school status and an adaptable individual

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .177) between type of A-level secondary school and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between type of A-level secondary school and students' positive ICT- related attributes. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect in students' positive ICT- related attributes, and vice versa. However, this relationship is very weak in that, studying from well-equipped A-level secondary schools results into a very weak effect in students' positive ICT- related attributes.

Income level and acceptability/willingness to use ICT in learning

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .525) between income level and willingness to use ICT in learning. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a moderate positive relationship between income level and willingness to use ICT in learning. The

positive relationship implies that as one's level of income increases, so does his/her willingness to use ICT in learning, and vice versa. However, this relationship is moderate in that a change in one's income level results into a moderate change in his/her willingness to use ICT in learning.

Social status and acceptability/willingness to use ICT in learning

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .206$) between social status and willingness to use ICT in learning. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between social status and willingness to use ICT in learning. The positive relationship implies that as one's social status improves, so does his/her willingness to use ICT in learning, and vice versa. However, this relationship is weak in that a change in one's social status results into a weak change in his/her willingness to use ICT in learning.

Primary school status and acceptability/willingness to use ICT in learning

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation ($r = .099$) between type of primary school and willingness to use ICT in learning. This correlation was significant given that its significance level ($p = .041$) was less than the critical significance level at .05. Because of this, this shows that there is a

very weak positive relationship between type of primary school and willingness to use ICT in learning. The positive relationship implies that studying from well equipped primary schools (with computer facilities), has a positive effect on willingness to use ICT in learning, and vice versa. However, this relationship is very weak in that, studying from well-equipped primary schools results into a very weak effect in students' willingness to use ICT in learning.

O-level secondary school status and willingness to use ICT in learning

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .222$) between type of O-level secondary school and willingness to use ICT in learning. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of O-level secondary school and willingness to use ICT in learning. The positive relationship implies that studying from more equipped O-level secondary schools (with computer facilities), has a positive effect on willingness to use ICT in learning, and vice versa. However, this relationship is weak in that, studying from well-equipped O-level secondary schools results into a weak effect in students' willingness to use ICT in learning.

A-level secondary school status and ability to use computer hardware components and other peripherals

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in

learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .234) between type of A-level secondary school and willingness to use ICT in learning. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of A-level secondary school and willingness to use ICT in learning. The positive relationship implies that studying from more equipped A-level secondary schools (with computer facilities), has a positive effect on willingness to use ICT in learning, and vice versa. However, this relationship is weak in that, studying from more equipped A-level secondary schools results into a weak effect on students' willingness to use ICTs in learning.

Income Level and interest in using desktop computers (PC) and other hardware components

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a moderate positive correlation (r = .415) between income level and interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a moderate positive relationship between income level and interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that as one's level of income increases, so does his/her interest in using desktop computers (PCs) and other hardware components, and vice versa. However, this relationship is moderate in that a change in one's income level results into

a moderate change in his/her interest in using desktop computers (PCs) and other hardware components.

Social status and interest in using desktop computers (PCs) and other hardware components

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .230) between social status and interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between social status and interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that as one's social status improves, so does his/her interest in using desktop computers (PC) and other hardware components, and vice versa. However, this relationship is weak in that a change in one's social status results into a weak change in his/her ability to use computer hardware components and other peripherals.

Primary school status and interest in using desktop computers (PC) and other hardware components

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .074) between type of primary school and interest in using desktop computers (PCs) and other hardware components. This correlation was not significant

given that its significance level (p = .126) was greater than the critical significance level at .05. Because of this, this shows that there is no relationship between type of primary school and interest in using desktop computers (PCs) and other hardware components. The absence of relationship implies that studying from well equipped primary schools (with computer facilities), has no effect on interest in using desktop computers (PCs) and other hardware components, and vice versa.

O-level secondary school status and interest in using desktop computers (PC) and other hardware components

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .190) between type of O-level secondary school and interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very weak positive relationship between type of O-level secondary school and interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that studying from well equipped O-level secondary schools (with computer facilities), has a positive effect on interest in using desktop computers (PCs) and other hardware components, and vice versa. However, this relationship is very weak in that, studying from well equipped O-level secondary schools results into a very weak effect in interest in using desktop computers (PCs) and other hardware components.

A-level secondary school status and interest in using desktop computers (PC) and other hardware components

Table 4.71 is meant to present, interpret and analyze objective one, which is about the relationship between students' social - economic characteristics and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation ($r = .247$) between type of A-level secondary school and interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a weak positive relationship between type of A-level secondary school and interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that studying from well equipped A-level secondary schools (with computer facilities), has a positive effect in interest in using desktop computers (PCs) and other hardware components, and vice versa. However, this relationship is weak in that, studying from well-equipped A-level secondary schools results into a weak effect in interest in using desktop computers (PCs) and other hardware components.

In support of the students' findings above, an interview with 32 students from Makerere University, Kyambogo University, Uganda Martyrs' University and Kampala International University each University with 8 representative students revealed the following:

Most students said that social economic characteristics influence adaptation to ICT in learning. They also accepted that the social and income levels of students whether high, moderate or low determine how they perceive and use ICT. Most students also raised the fact that even students' areas of origin determine how they adapt ICT saying that those

who originate from urban areas tend to be more compliant to the ICT compared to those from rural areas. According to most interviewees, even the university and school to which one goes determine one's adaptation to ICT. Most students of high social economic characteristics acknowledged that they had higher levels of knowledge; interest, willingness and innovativeness depending on their responses on ICT related questions in the interview compared to their counterparts from the low social economic backgrounds.

In an exclusive interview with one-second year student in Kyambogo University, I had this reply to note;

> "Am doing excellently in this field of computers because, I was exposed to them in my early childhood. I grew up in a well to do family where we had a computer at home and I also got a chance to study from a secondary school where computers were at our disposal. Because of the background I went through, my life now rotates on computers and without them I can not run most my activities".

Another interviewee answered that;

> "I have little time to devote to ICTs because I have a family to look after and on top of that am working".

Basing on the responses, the findings suggest that the majority of the students with high ability in using computer hardware components and other peripherals plus other ICT – related education and skills are from Social-Economic backgrounds that are conducive to learning with ICTs.

4.2 Hypothesis two; the students' levels of class performance determine their adaptation to ICT in Learning

Table 4.72: The students' levels of class performance determine their adaptation to ICT in Learning - Correlations using Pearson Correlation

	University academic performance	Advanced level range of points	Ordinary leve grades
Ability to use computer hardware components and other peripherals	r = .245 p = .000 N = 424	r =.200 p = .000 N = 424	r =.328 p = .000 N = 424
Ability to use computer software programs	r =.275 p = .000 N = 424	r =.313 p = .000 N = 424	r =.239 p = .000 N = 424
Ability to use internet facilities for learning purposes	r =.210 p = .000 N = 424	r =.295 p = .000 N = 424	r =.215 p = .000 N = 424
Ability to use communication facilities	r =.173 p = .000 N = 424	r =.199 p = .000 N = 424	r =.234 p = .000 N = 424
Speed to adopt to ICT facilities	r =.235 p = .000 N = 424	r =.209 p = .000 N = 424	r =.233 p = .000 N = 424
An adaptable individual	r =.317 p = .000 N = 424	r =.358 p = .000 N = 424	r =.354 p = .000 N = 424
Acceptability/willingness to use ICT in learning	r =.336 p = .000 N = 424	r =.332 p = .000 N = 424	r =.320 p = .000 N = 424
Level of interest/curiosity in using desktop computers (PCs) and other hardware components	r =.264 p = .000 N = 424	r =.263 p = .000 N = 424	r =.304 p = .000 N = 424

In the questionnaire, Table 4.72 is intended to answer the question about performance characteristics of students and adaptation to ICT in learning.

University academic performance and ability to use computer hardware components and other peripherals

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .245)

between class performance at University and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and ability to use computer hardware components and other peripherals. The positive relationship implies that those who perform well at University have more ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is low in that better performance at University has a low relationship with ability to use computer hardware components and other peripherals.

Advanced level grades and ability to use computer hardware components and other peripherals

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .200) between class performance at Advanced Level (A-Level) and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Advanced Level and ability to use computer hardware components and other peripherals. The positive relationship implies that those who perform well at Advanced Level have more ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is low in that better performance at Advanced Level has a low relationship with ability to use computer hardware components and other peripherals

Ordinary level grades and Ability to use computer hardware components and other peripherals

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .328) between class performance at Ordinary level and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and ability to use computer hardware components and other peripherals. The positive relationship implies that those who perform well at Ordinary level have more ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low relationship with ability to use computer hardware components and other peripherals.

University academic performance and ability to use computer software programs

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .275) between class performance at University and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and ability to use computer software programs. The positive relationship implies that those who perform well at University have more ability to use computer software programs, and vice versa. However, this

relationship is low in that better performance at University has a low relationship with ability to use computer software programs.

Advanced level grades and ability to use computer software programs

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .313) between class performance at Advanced Level (A-Level) and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Advanced Level and ability to use computer software programs. The positive relationship implies that those who perform well at Advanced Level have more ability to use computer software programs, and vice versa. However, this relationship is low in that better performance at Advanced Level has a low relationship with ability to use computer software programs.

Ordinary level grades and ability to use computer software programs

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .239) between class performance at Ordinary level and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and ability to use computer software programs. The positive relationship implies that those who perform

well at Ordinary level have more ability to use computer software programs, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low relationship with ability to use software programs.

University academic performance and ability to use Internet facilities for learning purposes

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .210) between class performance at University and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and ability to use Internet facilities for learning purposes. The positive relationship implies that those who perform well at University have more ability to use Internet facilities for learning purposes, and vice versa. However, this relationship is low in that better performance at University has a low relationship with ability to use Internet facilities for learning purposes.

Advanced level grades and ability to use Internet facilities for learning purposes

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .295) between class performance at Advanced Level (A-Level) and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance

level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Advanced Level and ability to use Internet facilities for learning purposes. The positive relationship implies that those who perform well at Advanced Level have more ability to use internet facilities for learning purposes, and vice versa. However, this relationship is low in that better performance at Advanced Level has a low relationship with ability to use Internet facilities for learning purposes.

Ordinary level grades and ability to use Internet facilities for learning purposes

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .215) between class performance at Ordinary level and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and ability to use Internet facilities for learning purposes. The positive relationship implies that those who perform well at Ordinary level have more ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low relationship with ability to use Internet facilities for learning purposes.

University academic performance ability to use communication facilities

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning

in selected universities in Kampala Region. It shows a very low positive correlation (r = .173) between class performance at University and ability to use communication facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very low positive relationship between class performance at University and ability to use communication facilities. The positive relationship implies that those who perform well at University have more ability to use communication facilities, and vice versa. However, this relationship is very low in that better performance at University has a very low relationship with ability to use communication facilities

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Advanced level grades and ability to use communication facilities

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very low positive correlation (r = .199) between class performance at Advanced Level (A-Level) and ability to use communication facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a very low positive relationship between class performance at Advanced Level and ability to use communication facilities. The positive relationship implies that those who perform well at Advanced Level have more ability to use communication facilities, and vice versa. However, this relationship is very low in that better performance at Advanced Level has a very low relationship with ability to use communication facilities.

Ordinary level grades and ability to use communication facilities

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .234) between class performance at Ordinary level and ability to use communication facilities.. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and ability to use communication facilities. The positive relationship implies that those who perform well at Ordinary level have more ability to use communication facilities, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low relationship with ability to use communication facilities.

University class performance and speed to adopt ICT facilities

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .235) between class performance at University and Speed to adopt ICT facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and Speed to adopt ICT facilities. The positive relationship implies that those who perform well at University have more Speed to adopt ICT facilities, and vice versa. However, this relationship is very low in

that better performance at University has a low relationship with Speed to adopt ICT facilities.

Advanced level grades and speed to adopt ICT facilities

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .209) between class performance at Advanced Level (A-Level) and Speed to adopt ICT facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Advanced Level and Speed to adopt ICT facilities. The positive relationship implies that those who perform well at Advanced Level have more Speed to adopt ICT facilities, and vice versa. However, this relationship is low in that better performance at Advanced Level has a low relationship with Speed to adopt ICT facilities.

Ordinary level grades and speed to adopt ICT facilities

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .233) between class performance at Ordinary level and Speed to adopt ICT facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and Speed to adopt ICT facilities. The positive relationship implies that those who perform well at Ordinary level have more

Speed to adopt ICT facilities, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low relationship with Speed to adopt ICT facilities.

University academic performance and an adaptable individual

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .317) between class performance at University and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and students' positive ICT- related attributes. The positive relationship implies that those who perform well at University accept more the positive ICT- related attributes, and vice versa. However, this relationship is low in that better performance at University has a low acceptance of positive ICT- related attributes.

Advanced level grades and an adaptable individual

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .358) between class performance at Advanced Level (A-Level) and students' positive ICT-related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Advanced Level and students' positive ICT- related attributes. The positive relationship implies that those who perform

well at Advanced Level accept more the positive ICT- related attributes, and vice versa. However, this relationship is low in that better performance at Advanced Level has a low acceptance of positive ICT- related attributes.

Ordinary level grades and an adaptable individual

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .354) between class performance at Ordinary level and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and students' positive ICT-related attributes. The positive relationship implies that those who perform well at Ordinary level accept more the positive ICT- related attributes, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low acceptance of positive ICT- related attributes.

University academic performance and willingness to use ICT in learning

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .336) between class performance at University and willingness to use ICT in learning. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and willingness to use ICT in

learning. The positive relationship implies that those who perform well at University are more willing to use ICT in learning, and vice versa. However, this relationship is low in that better performance at University has a low willingness to use ICT in learning.

Advanced level grades and willingness to use ICT in learning

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation ($r = .332$) between class performance at Advanced Level (A-Level) and willingness to use ICT in learning. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Advanced Level and willingness to use ICT in learning. The positive relationship implies that those who perform well at Advanced Level are more willing to use ICT in learning, and vice versa. However, this relationship is low in that better performance at Advanced Level has a low willingness to use ICT in learning.

Ordinary level grades and willingness to use ICT in learning

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation ($r = .320$) between class performance at Ordinary level and willingness to use ICT in learning. This correlation was significant given that its significance level ($p = .000$) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and willingness to use ICT in

learning. The positive relationship implies that those who perform well at Ordinary level are more willing to use ICT in learning, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low willingness to use ICT in learning.

University academic performance and level of interest in using desktop computers (PCs) and other hardware components

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .264) between class performance at University and Level of interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at University and Level of interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that those who perform well at University have more interest in using desktop computers (PCs) and other hardware components, and vice versa. However, this relationship is low in that better performance at University has a low relationship with Level of interest in using desktop computers (PCs) and other hardware components.

Ordinary level grades and level of interest in using desktop computers (PCs) and other hardware components

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .264) between class performance at Ordinary level and Level of interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive relationship between class performance at Ordinary level and Level of interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that those who perform well at Ordinary level have more interest in using desktop computers (PCs) and other hardware components, and vice versa. However, this relationship is low in that better performance at Ordinary level has a low relationship with Level of interest in using desktop computers (PCs) and other hardware components.

Advanced level grades and level of interest in using desktop computers (PCs) and other hardware components

Table 4.72 is meant to present, interpret and analyze objective two, which is about the relationship between students' performance/intelligence and adaptation to ICT in learning in selected universities in Kampala Region. It shows a low positive correlation (r = .264) between class performance at Advanced level grades and Level of interest in using desktop computers (PCs) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .05. Because of this, this shows that there is a low positive

relationship between class performance at Advanced level and Level of interest in using desktop computers (PCs) and other hardware components. The positive relationship implies that those who perform well at Advanced level have more interest in using desktop computers (PCs) and other hardware components, and vice versa. However, this relationship is low in that better performance at Advanced level has a low relationship with Level of interest in using desktop computers (PCs) and other hardware components.

In support of the students' findings above, an interview with 32 students from Makerere University, Kyambogo University, Uganda Martyrs' University and Kampala International University each university with 8 representative students (interviewees) revealed the following:

Most students agreed that class performance relates to adaptation to ICT in learning. They also accepted that best class performers or most intelligent students were most adapted to ICT in learning. According to most students, most bright students in their classes had highest ability, interest, willingness to use ICT, and rate at which they adopt ICT facilities in their learning. In the ICT related questions in the interview, the responses indicated that ICT usability; interest, willingness and innovativeness were high among high academic performers and low among poor academic performers.

In an exclusive interview with one-second year student in Kampala International University, I had this reply to note;

> "The 'bright students' are generally more knowledgeable and practical in the ICT related field and they are the ones consulted by their fellow

students for computer-related assistance in classes. Their high ability to use ICT helps them to get even more attracted to them".

Most co-coordinators of different ICT papers also confirmed that high academic performers (most intelligent students) have an upper hand in learning and grasping computer hardware and software components. They accepted that the brightest students were in better position to master ICT practically and theoretically though they also acknowledged that there were some worst class performers at the end of the performance continuum who were more practical in ICT related activities than some of the brightest students.

Basing on the responses, the findings suggest that the majority of the students with high adaptation to ICT are the best academic performers (intelligent ones) who do not have many problems with grasping the ICT related content that is both practical and theoretical.

4.3 Hypothesis three; gender and age of students determine their adaptation to ICT in learning

Table 4.73: Students by gender and their ability to use computer hardware components and other peripherals

Gender	Ability to use computer hardware components and other peripherals			Total
	Low Ability	Medium Ability	High Ability	
Female	33 19.5%	91 53.8%	45 26.7%	169 100.0%
Male	21 8.2%	151 59.2%	83 32.5%	255 100.0%
Total	54 12.7%	242 57.1%	128 30.2	424 100.0%
Chi-Square Values	$X^2_o = 11.9$ df = 2 $X^2_c = 6.0$			

Table 4.43 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 57.1% (N = 242/424), had a moderate ability in using computer hardware components and other peripherals. However, the male students had the largest proportion of students, 32.5% (N = 83/255), who had a high ability to use computer hardware components and other peripherals. The male students also had the largest proportion of students, 59.2% (N = 151/255), who had a moderate ability to use computer hardware components and other peripherals. The female students had the largest proportion of students, 19.5% (N = 33/169), who had a low ability to use computer hardware components and other peripherals. These findings were statistically significant given that chi-square observed (X^2_o = 11.9) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and ability to use computer hardware components and other peripherals. That is, male students have a higher ability to use computer hardware components and other peripherals than female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.74.

Table 4.74: Students by gender and their ability to use computer hardware components and other peripherals

Gender	Ability to use computer hardware components and other peripherals		
	Low Ability	Medium Ability	High Ability
Female	2.47371	-0.5557	-0.8427
Male	-2.0138	0.45238	0.686

Results in Table 4.74 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their low ability to use computer hardware components and other peripherals.

Table 4.75: Students by gender and their ability to use computer software programs

Gender	Ability to use computer software programs			Total
	Low Ability	Medium Ability	High Ability	
Female	29 17.2%	99 58.6%	41 24.3%	169 100.0
Male	10 3.9%	181 71.0%	64 25.1%	255 100.0
Total	39 9.2%	280 66.0%	105 24.8%	424 100.0
Chi-Square Values	$X^2_o = 21.8$ df = 2 $X^2_c = 6.0$			

Table 4.75 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 66.0% (N = 280/424), had a moderate ability to use computer software programs. However, male students had the largest proportion of students, 25.1% (N = 64/255), who had a high ability to use computer software programs. The male students also had the largest proportion of students, 71.0% (N 181/255), who had a moderate ability to use computer software programs. The female students had the largest proportion of students, 17.2% (N = 29/169), who had a low ability to use computer software programs. These findings were statistically significant given that chi-square observed ($X^2_o = 21.8$) was greater than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and ability to use computer software programs. That is, male students have a higher ability to use computer software

programs than female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.76.

Table 4.76: Students by gender and their ability to use computer software programs

Gender	Ability to use computer software programs		
	Low Ability	Medium Ability	High Ability
Female	3.41269	-1.1931	-0.1316
Male	-2.7782	0.97126	0.10714

Results in Table 4.76 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their low ability to use computer software programs.

Table 4.77: Students by gender and their ability to use Internet facilities for learning purposes

Gender	Ability to use internet facilities for learning purposes			Total
	Low Interest	Medium Interest	High Interest	
Female	30 17.8%	89 52.7%	50 29.6%	169 100.0
Male	14 5.5%	181 71.0%	60 23.5%	255 100.0
Total	44 10.4%	270 63.7%	110 25.9%	424 100.0
Chi-Square Values	$X^2_o = 21.5$ df = 2 $X^2_c = 6.0$			

Table 4.77 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 63.7% (N = 270/424), had a moderate ability to use Internet facilities for

learning purposes. However, female students had the largest proportion of students, 29.6% (N = 50/169), who had a high ability to use Internet facilities for learning purposes. The male students had the largest proportion of students, 71.0% (N = 181/255), who had a moderate ability to use Internet facilities for learning purposes. The female students had the largest proportion of students, 17.8% (N = 30/169), who had a low ability to use Internet facilities for learning purposes. These findings were statistically significant given that chi-square observed ($X^2_o = 21.5$) was greater than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and ability to use Internet facilities for learning purposes. That is, female students have a higher ability to use Internet facilities for learning purposes than male students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.78.

Table 4.78: Students by gender and their ability to use Internet facilities for learning purposes

Gender	Ability to use internet facilities for learning purposes		
	Low Interest	Medium Interest	High Interest
Female	2.97584	-1.7947	0.92965
Male	-2.4226	1.46104	-0.7568

Results in Table 4.78 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their low ability to use Internet facilities for learning purposes.

Table 4.79: Students by gender and their ability to use communication facilities

Gender	Ability to use communication facilities			Total
	Low ability	Medium ability	High ability	
Female	33 19.5%	98 58.0%	38 22.5%	169 100.0
Male	20 7.8%	171 67.1%	64 25.1%	255 100.0
Total	53 12.5%	269 63.4%	102 24.1%	424 100.0
Chi-Square Values	$X^2_o = 12.7$ df = 2 $X^2_c = 6.0$			

Table 4.79 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about practical use and knowledge of ICT in learning. It shows that most students, 63.4% (N = 269/424), had a moderate ability to use communication facilities. However, male students had the largest proportion of students, 25.1% (N = 64/255), who had a high ability to use communication facilities. The male students also had the largest proportion of students, 67.1% (N = 171/255), who had a moderate ability to use communication facilities. The female students had the largest proportion of students, 19.5% (N = 33/169), who had a low ability to use communication facilities. These findings were statistically significant given that chi-square observed (X^2_o = 12.7) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and ability to use communication facilities. That is, male students have a higher ability to use communication facilities than female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.80.

Table 4.80: Students by gender and their ability to use communication facilities

Gender	Ability to use communication facilities		
	Low ability	Medium ability	High ability
Female	2.58366	-0.8904	-0.4165
Male	-2.1033	0.72483	0.33907

Results in Table 4.68 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their low ability to use communication facilities.

Table 4.81: Students by gender and their speed to adopt ICT facilities

Gender	Speed to adopt ICT facilities			Total
	Low Speed	High Speed	Very High Speed	
Female	46 27.2%	92 54.4%	31 18.3%	169 100.0
Male	31 12.2%	155 60.8%	69 27.1%	255 100.0
Total	77 18.2%	247 58.3%	100 23.6%	424 100.0
Chi-Square Values	$X^2_o = 16.7$ df = 2 $X^2_c = 6.0$			

Table 4.81 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 58.3% (N = 247/424), had a high speed to adopt ICT facilities. However, male students had the largest proportion of students, 27.1% (N = 69/255), who had a very high Speed to adopt ICT facilities. The male students also had the largest proportion of students, 60.8% (N = 155/255), who had a high speed to adopt ICT facilities. The female students had the biggest proportion of students, 27.2% (N = 46/169), who had a low

Speed to adopt ICT facilities. These findings were statistically significant given that chi-square observed (X^2_o = 16.7) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and Speed to adopt ICT facilities. That is, male students have a higher Speed to adopt ICT facilities than female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.82.

Table 4.82: Students by gender and their speed to adopt ICT facilities

Gender	Speed to adopt ICT facilities		
	Low Speed	High Speed	Very High Speed
Female	2.76338	-0.6501	-1.4031
Male	-2.2496	0.52924	1.14228

Results in Table 4.82 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their low speed to adopt ICT facilities.

Table 4.83 Students by gender and their ICT adaptable characteristics

Gender	An adaptable individual			Total
	Disagree	Agree	Strongly agree	
Female	25 14.8%	96 56.8%	48 28.4%	169 100.0
Male	5 2.0%	176 69.0%	74 29.0%	255 100.0
Total	30 7.1%	272 64.2%	122 28.8%	424 100.0
Chi-Square Values	$X^2_o = 26.0$ df = 2 $X^2_c = 6.0$			

Table 4.48 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' innovativeness in the use of ICT in learning. It shows that most students, 64.2% (N = 272/424), agree with positive ICT- related behaviors as being their attributes. However, male students had the largest proportion of students, 29.0% (N = 74/255), who strongly agreed with positive ICT- related behaviors as being their attributes. The male students also had the largest proportion of students, 69.0% (N = 176/255), who agreed with positive ICT- related behaviors as being their attributes. The female students also had the largest proportion of students, 14.8% (N = 25/169), who disagreed with positive ICT- related behaviors as being their attributes. These findings were statistically significant given that chi-square observed ($X^2_o = 26.0$) was greater than chi-square critical ($X^2_c = 6.0$) at two-degrees of freedom (df = 2). Thus, findings suggest an association between students' gender and agreement with positive ICT- related behaviors as being their attributes. That is, male students more strongly agreed with positive ICT- related behaviors as being their attributes than the female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.84.

Table 4.84: Students by gender and their ICT adaptable characteristics

Gender	An adaptable individual		
	Disagree	Agree	Strongly agree
Female	3.77171	-1.1924	-0.09
Male	-3.0705	0.97069	0.07324

Results in Table 4.84 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their lack of ICT adaptable characteristics.

Table 4.85: Students by gender and their willingness to use ICT in learning

Gender	Willingness to use ICT in learning			Total
	Low willingness	Medium willingness	High willingness	
Female	37 21.9%	97 57.4%	35 20.7%	169 100.0
Male	16 6.3%	183 71.8%	56 22.0%	255 100.0
Total	53 12.5%	280 66.0%	91 21.5%	424 100.0
Chi-Square Values	$X^2_o = 23.1$ df = 2 $X^2_c = 6.0$			

Table 4.85 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' willingness in the use of ICT in learning. It shows that most students, 66.0% (N = 280/424), had a moderate willingness to use ICT in learning. However, male students had the largest proportion of students, 22.0% (N = 56/255), who had a high willingness to use ICT in learning. The male students also had the largest proportion of students, 71.8% (N = 183/255), who had a moderate willingness to use ICT in learning. The female students had the largest proportion of students, 21.9% (N = 37/169), who had a low willingness to use ICT in learning. These findings were statistically significant given that chi-square observed (X^2_o = 23.1) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and willingness to use computer hardware components and other peripherals. That is, male students have a higher willingness to use ICT in learning

than female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.86.

Table 4.86: Students by gender and their willingness to use ICT in learning

Gender	Willingness to use ICT in learning		
	Low willingness	Medium willingness	High willingness
Female	3.45394	-1.3824	-0.2111
Male	-2.8118	1.12538	0.17184

Results in Table 4.86 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to their low willingness to use ICT in learning.

Table 4.87: Students by gender and their interest/curiosity in using desktop computers (PCs) and other hardware components

Gender	Interest/curiosity in using desktop computers (PCs) and other hardware components			Total
	Low interest	Medium interest	High interest	
Female	37 21.9%	106 62.7%	26 15.4%	169 100.0
Male	26 10.2%	165 64.7%	64 25.1%	255 100.0
Total	63 14.9%	271 63.9	90 21.2	424 100.0
Chi-Square Values	$X^2_o = 13.9$ df = 2 $X^2_c = 6.0$			

Table 4.87 is meant to present, interpret and analyze objective three, which is about the relationship between students' gender and adaptation to ICT in learning in selected universities in Kampala Region. In the questionnaire, this table is intended to answer the question about students' interest in the use of ICT in learning. It shows that most students,

63.9% (N = 271/424), had a moderate Level of interest in using desktop computers (PCs) and other peripherals. However, male students had the largest proportion of students, 25.1% (N = 64/255), who had a high Level of interest in using desktop computers (PCs) and other peripherals. The male students also had the largest proportion of students, 64.7% (N = 165/64), who had a moderate Level of interest in using desktop computers (PCs) and other peripherals. The female students had the largest proportion of students, 21.9% (N = 37/169), who had a low Level of interest in using desktop computers (PCs) and other peripherals. These findings were statistically significant given that chi-square observed (X^2_o = 13.9) was greater than chi-square critical (X^2_c = 6.0) at two-degrees of freedom (df = 2). Thus, findings suggest an association between gender and Level of interest in using desktop computers (PCs) and other peripherals. That is, male students have a higher Level of interest in using desktop computers (PCs) and other peripherals than female students. Given that chi square results were significant, the standardized residual (R) was calculated to find out what specifically is significant. Findings are presented in Table 4.88.

Table 4.88: Students by gender and their interest/curiosity in using desktop computers (PCs) and other hardware components

Gender	Interest/curiosity in using desktop computers (PCs) and other hardware components		
	Low interest	Medium interest	High interest
Female	2.37258	-0.194	-1.6484
Male	-1.9315	0.15795	1.34191

Results in Table 4.88 show that standardized residuals that have a magnitude greater than 2.00, the corresponding categories are considered a major contributor to the significance. Thus, the major contributor to the significance is the association of female students to

their low interest/curiosity in using desktop computers (PCs) and other hardware components.

From the results of the interviews, most students agreed that the gender to a big extent determines their adaptation to ICT in learning. They also noted that male students were more adapted to ICT in learning as their performance and seriousness in using ICT was superior to that of the female students in general though they recognized that some females were high performers in ICT classes. In an exclusive interview with one first year female student in Kyambogo University, I had this reply to note;

> "The boys are the ones who know most of those ICT related components and they are the ones who know most how to use them"

Most co-coordinators of different ICT papers also confirmed that male students have an upper hand in learning and grasping ICT use and that they have higher ability in ICT related activities. Most of them agreed that some female students perform very well in ICT and love ICT use but the biggest proportion of the female students is less serious and able to use ICT well when compared to the male students.

Table 4.89: Correlation between students' age and adaptation to ICT in learning

Demographic characteristic	Age cohort
Ability to use computer hardware components and other peripherals	r = .352 p = .000 N = 424
Ability to use computer software programs	r =.368 p = .000 N = 424
Ability to use internet facilities for learning purposes	r =.307 p = .000 N = 424
Ability to use communication facilities	r =.359 p = .000 N = 424
Speed to adopt to ICT facilities	r =.285 p = .000 N = 424
An adaptable individual	r =.173 p = .000 N = 424
Acceptability and willingness to use ICT in learning	r =.287 p = .000 N = 424
Level of interest/curiosity and psychological contract in using desktop computer (PC) and other hardware components	r =.306 p = .000 N = 424

And Correlation is significant at the 0.01 level (2-tailed).

In the questionnaire, this table is intended to answer the question about students' age characteristics and adaptation to ICT in learning.

Age group and ability to use computer hardware components and other peripherals

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .352) between Age group and ability to use computer hardware components and other peripherals. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01. Because of this, this shows that there is a weak positive

relationship between Age group and ability to use computer hardware components and other peripherals. The positive relationship implies that as one's age increases, so does his/her ability to use computer hardware components and other peripherals, and vice versa. However, this relationship is weak in that a change in one's Age results into a weak change in his/her ability to use computer hardware components and other peripherals.

Age group and ability to use computer software programs

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .368) between Age group and ability to use computer software programs. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01. Because of this, this shows that there is a weak positive relationship between Age group and ability to use computer software programs. The positive relationship implies that as one's Age increases, so does his/her ability to use computer software programs, and vice versa. However, this relationship is moderate in that a change in one's Age changes, this results into a weak change in his/her ability to use computer software programs.

Age group and ability to use Internet facilities for learning purposes

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .307) between Age group and ability to use Internet facilities for learning purposes. This correlation was significant given that its significance level (p = .000) was less than the critical

significance level at .01. Because of this, this shows that there is a weak positive relationship between Age group and use of Internet facilities for learning purposes. The positive relationship implies that as one's Age increases, so does his/her ability to use Internet facilities for learning purposes, and vice versa. However, this relationship is weak in that a change in one's Age results into a weak change in his/her ability to use Internet facilities for learning purposes.

Age group and ability to use communication facilities

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .359) between Age group and ability to use communication facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01. Because of this, this shows that there is a weak positive relationship between Age group and ability to use communication facilities. The positive relationship implies that as one's Age increases, so does his/her ability to use communication facilities, and vice versa. However, this relationship is weak in that a change in one's Age group results into a weak change in his/her ability to use communication facilities

Age group and speed to adopt ICT facilities

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to IC in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .285) between Age group and speed to Adopt ICT facilities. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01. Because of

this, this shows that there is a weak positive relationship between Age group and speed to Adopt ICT facilities. The positive relationship implies that as one's level of Age increases, so does his/her speed to Adopt ICT facilities, and vice versa. However, this relationship is weak in that a change in one's Age results into a weak change in his/her speed to Adopt ICT facilities.

Age group and an adaptable individual

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a very weak positive correlation (r = .173) between Age group and students' positive ICT- related attributes. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01. Because of this, this shows that there is a very weak positive relationship between Age group and students' positive ICT- related attributes. The positive relationship implies that as one's Age increases, so does his/her increased acceptance of positive ICT- related attributes, and vice versa. However, this relationship is very weak in that a change in one's Age results into a very weak change in acceptance of positive ICT- related attributes

Age group and willingness to use ICT in learning

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .287) between Age group and willingness to use ICT in learning. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01.

Because of this, this shows that there is a weak positive relationship between Age group and willingness to use ICT in learning. The positive relationship implies that as one's Age increases, so does his/her willingness to use ICT in learning, and vice versa. However, this relationship is weak in that a change in one's Age results into a weak change in his/her willingness to use ICT in learning.

Age group and interest in using desktop computers (PC) and other hardware components

Table 4.89 is meant to present, interpret and analyze objective three, which is about the relationship between students' age and adaptation to ICT in learning in selected universities in Kampala Region. It shows a weak positive correlation (r = .306) between Age group and interest in using desktop computer (PC) and other hardware components. This correlation was significant given that its significance level (p = .000) was less than the critical significance level at .01. Because of this, this shows that there is a weak positive relationship between Age group and interest in using desktop computer (PC) and other hardware components. The positive relationship implies that as one's Age increases, so does his/her interest in using desktop computer (PC) and other hardware components, and vice versa. However, this relationship is weak in that a change in one's Age results into a weak change in his/her interest in using desktop computer (PC) and other hardware components.

In support of the students' findings above, an interview with 32 students' leaders from Makerere University, Kyambogo University, Uganda Martyrs' University and Kampala International University each University with 8 representative students revealed the following:

Most students indicated that age has a bearing on their adaptation to ICT in learning. They also noted that as they grow, their adaptation to ICT goes on increasing sometimes because of being more dependent on ICT.

In an interview with one-third year student in Makerere University I had this reply to note;

> "I started this course at diploma level with a lot of little vigor but as time went on - now 5 years down the road I became more serious with use of ICT, with interest and willingness in the use of ICT increasing though am becoming more proficient in the ICT field"

Most co-coordinators of different ICT papers also confirmed that as they advance in studies and grow in age their adaptation to ICT increases. In an interview with the students who looked older in their physical age, most of them acknowledged that their practical knowledge and overall adaptation to ICT was better than that of their younger counterparts.

In addition to the issue of gender, most female students acknowledged the fact that, they were less adapted to ICT compared to their counterparts the male students. In most of the ICT related questions in the questionnaire, female students seemed to be with lower interest, willingness, innovativeness and usability compared to the male students.

In an interview with one-second year female student in Uganda Martyrs' University, I had this reply to note;

"I feel some of the ICT related lessons are meant for male students and I do not see reasons for attending them. The example I can give is lessons related to programming, and computer hardware maintenance".

Basing on the responses, the findings reveal that as students grow their adaptation to ICT goes on changing positively sometimes because of circumstances beyond their control. The interview results also confirmed that, female students were less adapted to ICT than their male counterparts.

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CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This Chapter provides descriptive discussions, conclusions and recommendations of issues related to adaptation to Information and Communication Technologies (ICT) among students in universities. In particular, this chapter discusses and scrutinizes the extent to which inequities in adaptation to ICT exist among students in Universities of Uganda; based on socio-economic characteristics, class performance/Intelligence, gender and age. This chapter deals with the findings in accordance with the order of hypotheses from one to three as presented below.

5.1 Discussion

Hypothesis one: The social - economic characteristics of students determine their adaptation to ICT in learning

The results of this analysis suggest and reveal that there is a 'digital divide' between students, in terms of their socio-economic characteristics and adaptation to ICT. Despite the tables in chapter four that suggest all students in Universities have a high or a moderate adaptation to ICT, it is well documented that the pattern of this adaptation is not spread evenly across the population of ICT students in Universities. In brief, the 'usual suspects' of socio-economic disadvantages are involved in the digital divide. These findings agree with International Labor Organization research (2001) report as given in chapter three in literature review.

In this survey, the 'un-married' people had a higher level of adaptation to ICT for using hardware components, software programs, Internet facilities, and communication facilities. The 'un-married' also had a higher level of interest and willingness to use ICT in learning- they appeared to be more adaptable to ICT in as far as their characteristics were concerned and they could adopt ICT more easily than the married ones (Tables 4.25-4.32). The married students had lower levels of adaptation to all the above variables except in the speed to adopt ICT where the 'un-married' ones had lower adaptation (Table 4.29). There were generally a higher proportion of married people with moderate adaptation to ICT (Tables 4.25-4.32).

It is understandable that some students, who are un-married, may have more spare time to use the ICT for education and to communicate with their friends and hence higher adaptation. Possible explanations why married students had lower adaptation to ICT lie in the area of decreased available time when compared to learners without partners and families. The married students devote more time to their families reducing their time of concentration on ICT.

Laudon and Laudon (1998) argued that, families are social units that provide a powerful bulwark against the demands of society, employers and the state. Historically, the family has played a central role in training children/ learners, developing social values, encouraging original and radical thoughts and nurturing emotions that can not be expressed anywhere else. According to them the digital revolution means among other things, that more and more people will be working /studying when they should be communicating with their families and loved ones. The result from the argument by the Laudons (1998) is that those who have families (married ones) spend more time

communicating to their families, which takes much of their time, and they fail to concentrate on learning with ICT.

The study findings concur with recent research from the United States, which showed that the presence of computers and Internet at home is strongly and positively associated with the academic outcomes of school children, particularly children from disadvantaged backgrounds Wilhelm et al (2002). However, on the other hand students who study while married outside school tend to be negatively affected in their studies. Since it is so, this negative effect is also reflected to ICT in learning.

For geographic location, although the connection between the 'urban-semi urban-rural divide' and the 'digital divide' is subject to debate, where a person lives does appear to influence their adaptation to ICT. The highest proportion of students with high adaptation to ICT for using hardware components, software programs, internet facilities, communication facilities was from the students of urban origin- they appeared to be more adaptable to ICT in as far as their characteristics were concerned and they had a higher level of interest and willingness to use ICT in learning (Tables 4.17- 4.20 and 4.22- 4.24). But those from semi urban areas could only adopt ICT more easily than those from urban and rural areas (Table 4.21). In the same tables above, it is clear that those students who originated from rural areas had the lowest adaptation levels to ICT. This suggests that the observed differences between metropolitan and semi-metropolitan and non-metropolitan areas is a function of the different socio-economic characteristics of populations/students that originate in these different areas. These characteristics that bring this difference in particular are the lower income and insufficient exposure/access levels of the poor and non-metropolitan aboriginal students.

Attewell's (2001) findings support this study's findings because they show that; one of the key issues in rural-urban comparisons is whether or not there is equitable access to ICT resources. Rural schools and rural communities often have a weaker economic base. What is more, for communities that are a large distance from an urban center, it can be very expensive to provide Internet access and/or technical ICT support. Given these considerations rural schools and rural communities may not be able to afford to provide similar levels of ICT facilities to youths as their urban counterparts. From this argument it is clear that the rural population stands at a disadvantage when compared to the urban population where access to ICT is at a high level creating a digital divide according to origin.

The findings of this study also agree with McLaren and Zappalà (2002) who analyzed that students from metropolitan areas were slightly more likely to use a computer 'regularly' (26 percent) compared to those from non-metropolitan areas (24 percent).

It is also relevant to note the apparent discrepancies in access to quality Internet connections in rural areas. These discrepancies are particularly pronounced in some of the more remote rural areas. As more and more resources become available via the Internet, these discrepancies, if not countered, will have serious implications for the divisions among youths in terms of their access to the presumed benefits of the information society. We are living in a society in which many tout the virtues of ICT: Information technology in education is an incredible resource and will, without question, continue to be the single most important component of twenty first century education (Trattner et al., 2000).

The study established that, there is a relationship between a student's income background/social status and adaptation to ICT. In all the variables like using hardware

components, software programs, Internet facilities, plus adoption, willingness and interest in using ICT there is a moderate relationship. It is only in the use of communication facilities that the relationship is weak but in general, the research suggests that people from higher socio-economic backgrounds have greater access and adaptation to ICT compared to those from lower socio-economic backgrounds (Table 4.49).

Income Level is an important factor in determining who benefits from the new technology. According to the research, the disparity between income groups is relatively high, with income earners in the top bracket more likely to get adapted to ICT than those in the lowest bracket. A key reason why students from low-income households have low adaptation to ICT is that, they don't get access and exposure to ICT at their early age due to the high costs of getting those ICT facilities. This agrees with findings of Reddick et al (2000) given in chapter three of literature review.

In support of this, Taylor et al (2003) said that the low range income groups have the lowest level of ICT usage for work at home, entertainment, information search and email use, when compared to the medium and high-income groups. According to their analysis middle range income was strongly associated with the senior age group (>55 years of age) and high-income earners in Internet usage.

According to the ILO'S World Employment Report (2001), the ICT revolution offers "genuine potential and real constraints." For the wealthier countries/areas at the forefront or on the threshold of the technological era, the prospect is one of revitalizing the so-called, "old economy" while expanding into new product areas and markets. According to the same report, similar patterns are observed in Europe, the pattern is much the same, with 37 per cent of ICT users (mostly male) earning incomes at the high end of the

spectrum, living in urban versus rural areas and predominantly in Northern richer countries rather than Southern countries.

Healy (1998) one of the most outspoken critics of the rush to introduce ICT into school classrooms says that, youths from families in which the parents have relatively low levels of education tend to use the computer less. He says that, those in rural areas and those from the lower socio-economic strata, as measured by parental education, are less likely to have a computer in their own home. Rural schools seem to be able to compensate for this lack. There is little evidence of a corresponding compensation for students who come from lower socio-economic households. Rather, this lack of access in the home seems to keep these students from developing a positive orientation to ICT. Males and females also differ in their attitudes towards ICT and the types of use they experience most often. This experience appears to affect their perceptions of their levels of competence with computers and ICT. Nevertheless, even those who do not take her extreme stance recommend that we proceed with caution, and make note of the social and other costs of the shift to ICT. One of those costs may be an exacerbation of inequities given that, unequal outcomes may stem from differences between affluent and disadvantaged students in what they do with the technology once they have access (Attewell, 2001).

The 'digital divide' argument is well-known - namely, that the unequal access and usage of ICT across the population - is compounding disadvantage for some, because having access to ICT is becoming central to being able to fully participate in the economic, social, political and cultural spheres of society (Lee et al., 2002). The advent and increasing sophistication of ICT has changed, and will continue to change, the way in which organizations, businesses, governments, communities and individuals operate and interact with each other.

Mathewson's (2002) observation agrees with this study's findings in chapter four hypothesis one since he argued that, there is some evidence that an increasing number of people have access to ICT, this is occurring more slowly than predicted by some analysts. More importantly, the evidence confirms that the probability of students having home access to ICT is strongly related to socioeconomic status (SES), namely access increases with higher levels of social economic status.

Findings of the study showed that the school background and university of attendance is another indicator of one's social background. Findings of the study revealed that the primary school one goes through determines to an extent one's adaptation to ICT. There was a significant relationship between the primary school one goes through and variables that relate to hardware components, adaptable characteristics, adoption of ICT, and willingness to adopt ICT (Table 4.49). However there was no significant relationship between the primary school one goes through and variables of using software programs, communication and Internet facilities, and general interest in using ICT (Table 4.49). For secondary level (O and A levels), generally there was a relationship between the secondary school one goes through and adaptation to ICT (Table 4.49). The positive relationship implied that studying from well-equipped primary /secondary school (with computer facilities), has a positive effect on adaptation to ICT, and vice versa. The school background and university of attendance may not seem to be direct personal characteristics but they become so as the environment affects one's characteristics and one assimilates those characteristics accordingly (This agrees with Piaget's Theory of Intellectual Development discussed in chapter 3 in literature review).

Jean Piaget's Theory of Intellectual Development given in chapter one and two according to Scatterly (1987) also supports these findings about the school environment. The

Piaget's Theory explains that assimilation is the process by which persons take material into their minds from the environment. The students in the Universities get adapted to the ICT depending to a large extent on the school environment in which they grew up.

The University of Attendance is another social and personal factor. There were differences detected between one's university of attendance and the adaptation to ICT. Kampala International University (KIU) had a higher level of adaptation to ICT for using hardware components, software programs, Internet facilities and communication facilities. Students of Kampala International University also had a higher level of interest and willingness to use ICT in learning (Tables 4.1- 4.4 and 4.7- 4.8). However it is the students of Makerere University (MU) who appeared to be most adaptable to ICT in as far as their characteristics were concerned and they could adopt ICT most easily compared to the students in other Universities (Tables 4.5 and 4.6). The reasons for adaptation being skewed to Kampala International University and Makerere University may be that students of Kampala international University are more of city dwellers and of higher incomes in the social-economic arena while for Makerere University it may be because of their level of innate abilities in studies.

In support of the findings about the school background, Sommeville (1995) said that software systems do not exist in isolation. Rather, they are used in a social and organizational (e.g. schools) context. That context can influence or even dominate both the requirements for the computer systems and the requirements analysis process. A significant weakness of most methods of analysis is that, they have no mechanism for taking such factors into account. According to him, social and organizational factors, which influence a system's requirements, cannot really be considered as a single viewpoint. Rather, they are potential influences on all viewpoints. Good requirements

analysts must be sensitive to the organizational, human and business factors affecting the ICT process.

Attewell and Natriello (2001) argue that few schools can afford technicians to support educational computing. What is more, they note "much of the appeal of educational computing stems from the hope that children can learn at the computer with minimal intervention from adults. Unfortunately, we discover that computers can easily provide unsupervised entertainment, but to educate effectively with computing requires as much if not more adult support and effort as do traditional teaching methods. Hence because of the expensive nature of the ICT some schools and adults do not buy them for their children and therefore rendering learners who go through those schools/homes unexposed to them, which results, into low adaptation to them in the future.

Much of the discussion of the "digital divide" centers on differences in access to ICT that reflects socio-economic status (SES). The level of prior qualification in ICT is one of the key measures that were considered to establish personal adaptation to ICT. However from the findings, it was revealed that, students' level of qualification/education in ICT does not affect adaptation to ICT (Tables 4.9-4.16). While we have seen that the patterns of use did vary by gender or locality of community, there was no effect based on students' level of qualification. It was revealed that, even students with certificates were much more adapted to ICT than Diploma students but again there was no significant effect based on qualification. Many students with certificates seemed to have higher adaptation compared to diploma holders because, they were direct entrants to the ICT courses at the universities and this meant that they were better performers. However, those of diplomas had lower adaptation because they were mature entrants and could not access these

courses at the university on direct entry, which meant that they were may be not high class performers and this is may be why they did not have high adaptation to ICT.

Employment status as a social-economic status was also examined among students. Differences were detected between fully employed and un-employed students regarding the proportion of the effect of employment status on ICT usage patterns is presented in Tables 4.33-4.40. Employment status was significant for all the variables like using hardware components, software programs, Internet facilities, communication facilities, plus adoption, willingness and interest in using ICT. There were differences detected between employed and un-employed students regarding the adaptation to ICT. That is, the unemployed students had higher adaptation to ICT than the employed students.

It is understandable that some students, who are employed, may have less spare time to use the ICT for education and hence lower adaptation. Possible explanations why employed students had lower adaptation to ICT lie in the area of decreased available time when compared to students without jobs. The employed students have relatively little time to devote to learning with ICT.

Support to the above view is given by Eisenstadt and Tom (2000) who argued that, we know that time pressures are felt by most participants who study ICT related courses if they are studying alongside fulltime employment. They also said that course design must build time into the schedule for working online as well as set course activities and reading. This was suggested to make these courses time friendly to the students who study them and at the same time with full or part time employment. This also agrees with

the findings in chapter four in the interview findings where one interviewee said that he has little time to devote to ICT use because he was employed and married.

Hypothesis two; the students' levels of class performance determine their adaptation to ICT in Learning

Students' performance/intelligence in class was also considered. According to the findings of the study, it was revealed that students at the extreme levels of performance continuum had different levels of adaptation to ICT. That is, the best performers at the universities and secondary schools (both Advanced level and Ordinary level) had the highest level of adaptation to ICT in general (Table 4.42). According to the results from the interviews the difference was brought about by the natural abilities of intelligence.

According to the findings from interviews, most students agreed that class performance relates with adaptation to ICT in learning. They also accepted that best class performers or most intelligent students were most adapted to ICT in learning. According to most students most bright students in their classes had highest ability, interest, willingness to use ICT, and had highest rates at which they adopted ICT facilities in their learning activities.

Most co-coordinators of different ICT papers at universities in different courses also confirmed that high class performers (most intelligent students) have an upper hand in learning and grasping computer hardware and software components. They accepted that the brightest students were in better position to master ICT practically and theoretically, though they also acknowledged that there were some worst class performers at the end of

the continuum who were very practical in ICT related activities even more than some of the brightest students.

Though the course may not be a direct indicator of one's intelligence, it is important to recognize it as it gives an insight of how adaptation varies according to courses as well to avoid problems of generalization. Course findings were also important, as they showed that brighter students ended up doing different courses from the bright ones. Findings of the study revealed that, there was a significant relationship between courses and adaptation to ICT (Tables 4.43- 4.50). For example, it was revealed that students of Bachelor of Business Computing had highest levels of adaptation to ICT in general and those of Bachelor of Information Technology had the lowest levels of adaptation to ICT in general. According to the results from the interviews the difference was brought about by the natural abilities among the students because some said that ICT facilities were complicated to understand, while others that they were easy depending on the courses they were doing. This seemed to be a matter of intelligence whereby brighter students ended up in certain courses and also more adapted to ICT than their counterparts.

The findings are in line with Jean Piaget's Theory of Intellectual Development cited by Scatterly (1987) who in his study discussed that adaptation to the world is a function of individual's assimilation and accommodation. He also explained that, assimilation is the process by which persons take material into their minds from the environment, which may mean changing the evidence of their senses to make it fit. While, accommodation is the difference made to one's mind by the process of assimilation. Since Piaget emphasized the mind and the sense, which must accommodate the learning content, this theory matches well with the findings of the study, which show that high

performers/bright students perform/accommodate ICT better than the poor performers whose minds find it hard to accommodate ICT in their education process.

In support of this, Blum (1992) argued about one's intelligence and the time it takes a typical ICT user to learn ICT products and to retain that knowledge. He asked himself questions like; how long does it take typical target users to learn to use the product (ICT program) for a set of relevant tasks? How well do the users retain their knowledge or skills over time? He continued to say that the period may be hours, weeks/months and retention usually is of concern for tasks that are not part of the user's routine daily activity. According to Blum (1992) there is a difference between retention of ICT knowledge depending on intelligence.

Blum (1992) also said that the two questions above relate to the ability of the user to build and retain an effective model of the tasks supported by the computer system. It is necessary to have the system map into the user's mental models and in order to be very easy to learn the system. Time to learn includes both an understanding of the context of the new product plus its use.

Hypothesis three; the age and gender of students determine their adaptation to ICT in learning

Data presented in Tables 4.51-4.58 shows that compared to their opposite gender, male students were generally more adapted to use ICT for learning, information search and other activities than female students who were less adapted to ICT. That is, gender has an effect on almost all variables including use of hardware components, software programs, communication and use of Internet facilities, plus ICT adoption, willingness, interest and

adaptable characteristics in using ICT. There was a significant relationship between students' adaptation to ICT and gender whereby the males were more adapted than the females. Males were more likely to state that they used a computer regularly compared to females according to the interview results. Findings of Klawe et al (2003) and Genry (2000) discussed in chapter three of literature review agree with this.

McLaren and Zappalà (2002) support the findings. The report says that, while males and females may have equal access to ICT and may report similar patterns of use, they have different conceptions of how they relate to ICT. According to them the differences are there, but in many instances they are not large. What is more, the differences tend to be attitudinal–males are more comfortable with computers; they are more likely to use computers out of interest and for pleasure. They feel more confident and competent using computers than do the young women. Working with computers is important to them. It remains to be seen how these predispositions will affect the use and skill development beyond high school. It does seem clear that there are some small but important gender differences in terms of experiences with and attitudes to computers among high school aged youths. McLaren and Zappalà (2002) analyzed in Europe that, boys were more likely to state that they used a computer 'regularly' (28 percent) compared to girls (22 percent).

In universities according to students' age cohort, it was revealed that as one's age increases, so does his/her ability to use computer hardware components and other peripherals, and vice versa. That is, older students in ICT related courses are more adapted to ICT than their younger counterparts in the same courses (Table 4.59). It was so because, according to the interviews, basically, the students in the younger age cohorts

were less financially independent compared to their colleagues. That is, they could not access ICT outside the universities by paying yet at the university where the ICT resources are free the availability is inadequate.

McLaren and Zappalà (2002) analyzed in Europe that students' age is a key factor in discriminating among students in terms of frequency of computer usage. The older students use computers more frequently than younger students. They also said that, home Internet use for information search was high across all age cohorts except for the senior cohort (>55 years of age). Home Internet use in the 25-39 age cohorts was dominant for education, entertainment, information search, managing home finances and online purchasing. The youngest age cohorts (18-24 years of age) also had high use for education; entertainment and information search but were relatively low users for managing home finances and online purchasing. The relatively low use of Internet at home by younger age group for managing home finance and online purchasing may imply that the majority of this group was not financially independent as expected. It is clear that the senior age cohort (>55 years of age) generally lagged behind other groups for all aspects of home Internet usage. They also analyzed that young women were less likely to report that they had done data entry and/or record keeping using the computer. This is also true as presented and analyzed in chapter four tables 4.59.

Jean Piaget's Theory (1987) supports these findings. Most of the learning material to be assimilated by the students depends on age. In line with Piaget's argument, there are general-humans' increasing capacities to understand their world: they (humans) cannot undertake certain tasks until they are psychologically mature enough to do so, not only the children but also the adults. For example, the theory states the formal operational (11

years and above) stage in which an individual thinks logically about abstract propositions and tests hypotheses systematically, becomes concerned with the hypothetical, the future, and ideological problems. Piaget also explains that adults find it difficult to adapt new staff. Since most students in higher age cohorts were the ones with higher adaptation to ICT it is therefore clear that age affects adaptation as Piaget analyzed.

5.2 Conclusion

The following conclusions were drawn from the discussion;

Hypothesis one; the social - economic characteristics of students determine their adaptation to ICT in learning

According to hypothesis one, the digital divide or differences in adaptation to ICT exist. The analysis notes that, it exists not only between students but within students. All the available evidence shows that adaptation to ICT usage is stratified according to social economic characteristics. While some of the differences are not large, they seem to be persistent and are likely to have an impact on the ways and the extent to which university students of different sub-groups involve themselves in the "information society." That is those with favorable social economic characteristics are more adapted to ICT that their counterparts.

Hypothesis two; the students' levels of class performance determine their adaptation to ICT in Learning

According to hypothesis two, the digital divide or differences in adaptation to ICT also exist in accordance with performance/intelligence. It indicates that, higher adaptation to

ICT is more common among brighter students or better class performers than their counterparts-the poor performers.

Hypothesis three; the age and gender of students determine their adaptation to ICT in learning

All the available evidence shows that adaptation to ICT usage is stratified. ICT use is much more common among older but not very old students rather than younger students and males rather than females. The findings clearly show the skew ness whereby the females and younger students have less adaptation levels to ICT than males and relatively older students.

5.3 Recommendations

The following recommendations were done in view of the conclusions.

The narrow ranges of ICT adaptation patterns should be carefully studied and that consuming or adaptation behavior should be observed to avoid inequitable and unhealthy use of these ICT depending on the personal social-economic profiles. This has at least two implications. The first implication is that, the costs/requirements of use of these ICT resources, as with other educational costs/requirements in general, are increasingly being pushed onto personal abilities. This further compounds the problem for students in financial disadvantage who often struggle to meet the basic costs of their ICT education. The recommendation here is that, the ICT stakeholders (government and private institutions/individuals) should ensure that they maintain the positive ICT attitude from time to time especially from tender age among the students from poor social backgrounds, the employed and married students, and the rural aboriginal poor. These should be sensitized and a rich ICT-Environment should be created for them to eliminate the "I can

not manage disease". In addition, the ICT stakeholders should ensure that some fund is earmarked by the ICT ministry to help bolster the ICT programs. The ICT programs can be bolstered by this fund through training the technical staff, subsidizing prices of ICT facilities for the sake of the poor who would like to use ICT and sensitizing the general society on the importance of ICT in the global village. The stakeholders in university education should therefore reinforce the need for programs such as Learning for Life that aim to assist families/students in financial disadvantage by meeting some of the ICT costs associated with their children's /students' education.

National/private- driven policies aimed at bridging the digital divide, should not only focus on reducing the cost of ICT, but also on ensuring that programs that provide appropriate ICT support and distribution also emphasize the educational importance of having home, school and rural access to computers and other ICT facilities. This may also mean that access and training programs should focus just as much on personal social-economic status in order to drive more students into the information highway. Finding ways to increase ICT access of low -income families should therefore remain a policy priority for all sectors aiming to bridge the digital divide.

The research report concludes that the ICT revolution offers "genuine potential and real constraints." For the students of more intelligence and more advantaged performance characteristics at the forefront of adaptation to the ICT era, the prospect is one of revitalizing the so-called, "old economy" while expanding equitable access to ICT to all university students regardless of academic ability. The prospect that "most of the university disadvantaged students are unlikely to reap the full advantages that the use of the ICT will bring any time soon" provides, one of the strongest arguments for letting the government assist financially and by policy to distribute ICT resources to even private universities and poor performers in academics in order to bolster the course of the ICT

revolution. In fact the poor performers should be given high chances for access to ICT especially for practical purposes and admissions to ICT related courses at universities should not so much lend themselves to academic abilities.

Greater research and policy attention needs to be given to the role of schools, teachers, parents and other stakeholders in the reduction of the ICT 'digital divide' based on gender and age. Some economic and social implications and consequences are that, university students will have lower productivity in society if fewer females and young people have the opportunity to exploit the benefits of ICT and, social consequences of education will be less cohesive if the 'new' or 'information' economy/society continues to be skewed only to the minority old and male students. Hence, this calls for a concerted effort from the government, non-government, and private individuals to improve ICT adaptation in learning among the males and young people and very old people by changing their attitudes through sensitization and empowering them financially. The access to ICT by the young/new entrants and females should be done by following the principle of equal opportunity to raise their levels of adaptation to ICT.

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APPENDICES

Appendix A: A self-administered questionnaire for undergraduate students of Makerere University, Kyambogo University, Uganda Martyrs' University, and Kampala International University.

Dear Sir/ Madam,

RE: RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS AND ADAPTATION TO ICT IN LEARNING IN SELECTED UNIVERSITIES IN KAMPALA REGION.

I am carrying out a research on personal characteristics and adaptation to ICT in learning in selected Universities in Kampala region. The purpose of the research is; to establish the associations between personal characteristics and adaptation to ICT. This is intended to better the formulation of ICT policies in Universities and to raise accessibility to ICT among students of different levels of intelligence, gender, age and socio-economic characteristics and to reduce the ICT divide (disparity) among students. The questionnaire below for Undergraduate students is part of the research.

Undergraduate students are expected to adapt to new and contemporary global trends of learning techniques and media like ICT, since they were installed and are being maintained by the Universities for the good of the students. It is on this basis that you are selected to be a participant in this research by responding to the questions in this questionnaire. I would therefore, request you kindly to provide answers to the different items in the questionnaire with thorough observation of the instructions. Please, provide the most genuine and appropriate answer in your opinion by ticking, circling, or writing where required.

I promise uttermost confidentiality to all the information that will be disclosed in this questionnaire.

Doing and finishing of this part of the research practically depends on your positive and supportive response. I politely request you to help me and fill this questionnaire within $1^1/_2$ weeks and return it to .....in your School/Faculty/Institute. Thank you very much in advance.

Yours Faithfully,

.....

Jude Kizito Namukangula (Researcher)

Social-economic, performance, age and gender characteristics of students

1.0 Name of your university ..... Course .....Year .....
1.1 In which Age cohort do you belong? a. (15-19) b. (20-24) c. (25-29) d. (30-34) e. (35-39) f. (40-44) g. (45-49) h. (50-54) i.(55-59).
1.2 What is your gender? 1.female 2.Male
1.3 What is your marital status? 1. Married 2.Unmarried
1.4 How would you describe your income level now? 1.Low income 2.Medium/Middle income 3.High income
1.5 How would you describe your social status now 1. Low 2. Medium/Middle 3. High/Upper
1.6 Employment status 1.Employed 2.Unemployed
1.7 Your class performance - University-current performance 1 (1st Class) 2. (2nd Class) 3. (3rd Class) 4. (Pass) - Advanced level range of points 1. (6-10) 2. (11-15) 3. (16-20) 4. (21-25) - Ordinary level Grade 1.(1st Grade) 2.(2nd Grade) 3.(3rd Grade) 4.(4th Grade)
1.8 How would you describe your primary school as it was then? 1. for low income earners 2. for middle income earners 3. for High income earners
1.9 How would you describe your O level school as it was then? 1. for low income earners 2. for middle income earners 3. for High income earners
2.0 How would you describe you're a level school as it was then? 1. for low income earners 2. for middle income earners 3. for High income earners
2.1 Your location/origin 1. Rural 2. Semi urban 3. Urban

Practical use and knowledge of ICT in learning

Please note that this section establishes a student's adaptation to ICT in learning in relation to practical use of ICT. This section is intended to give light on how practical and effective you are in using computers and other ICT facilities in learning.

Please indicate how much in terms of ability you can use a given ICT facility: Your responses are to range from 1-3. I.e. put 1 for low ability, put 2 for medium ability, and 3 for high ability.	
3.0 The desktop/personal computer (PC)	
3.1 The PC printer	
3.2 The Pc scanner	
3.3 The PC Floppy and CD-ROM drive	
3.4 The PC Zip drive	
In case of other hardware components please specify	
Computer software programs.	
3.5 Operating systems software like DOS, Windows, Linux etc	
3.6 Spreadsheet Software like Ms-excel,	
3.7 Utility software like anti virus, Disk defragmenters, etc	
3.8 Statistical software like SPSS, Epi Info etc	
3.9 Database management software like MS –access, Oracle, etc…	
The following internet facilities for learning purposes.	
4.4 E-mail (sending and receiving of educative messages).	
4.5 World Wide Web (Surfing)	
4.6 Electronic Bulletin Board services, mailing lists etc	

4.7 Computer conferencing systems.	
4.8 Video conferencing systems.	
4.9 Electronic journals, news letters/research	
5.0 Electronic databases	
5.1 If others please specify	
Communication facilities	
5.2 The personal computer (PC) in general	
5.3 The school/ faculty/institute local area network (LAN)	
5.4 The wide area network (WAN)	
5.5 The African Virtual University (AVU)	
5.6 The Internet Facilities (including online journals)	
5.7 ICT facilities in general	
5.8 Copying with the fast changing ICT technology (Hardware and Software Technology)	
5.9 Excellent self rated use of communication facilities	

Student's innovativeness in the use of ICT in learning

A student's ability to adapt to change/ a student's Innovativeness in ICT related learning; This is intended to give light on how students are innovative, modern and advanced on matters that pertain to ICT in learning.

Please indicate the speed with which you adapt (get adapted) to each of the following ICT facilities. Your responses will range from a minimum of 1-3 i.e. put 1 for low speed, 2 for medium speed and 3 for high speed	

7.0 Do you easily get adapted to advanced desktop computers in general and other hardware components above	
7.2 Do you easily get adapted to current and recent Local Area Network technologies	
7.3 Do you easily get adapted to current and recent Wide Area Network technologies	
7.4 Are you advanced in the use of Internet Technologies	
7.5 Are you innovative in /advanced in the way you use computer software programs	
To what extent do you agree with the following description about yourself? Your responses will range from a minimum of 1-3 i.e. put 1 for disagree, 2 for agree and 3 for strongly agree	
7.6 You are patient to the old and crude bureaucratic arrangements of accessing (ICT in your university)	
7.7 You are impatient to the bureaucratic arrangements and you go out of you university for other ICT sources like internet cafés	
7.8 You are change-oriented i.e you easily accept change	
7.9 You are innovative in ICT matters.	
8.0 You are progressive	
8.1 You support technological development and improvement	
8.2 You fully participate in all ICT related matters	
8.3 You make productive individual contributions with respect to ICT matters	
8.4 You ensure continuous learning through use of ICT	

8.5 You cope up with the fast changing ICT technology e.g. hardware and software terminologies.	

Acceptability/willingness to use ICT in learning.

Remember being willing does not mean being innovative. Here willingness is intended to find out how acceptable, agreeable and compatible a student is in as far as using ICT is concerned.

Please indicate the extent to which you are willing to use the ICT facilities below in your University. Your respective answers will range from 1- 3. I.e. put 1 for low willingness, put 2 for medium willingness, and 3 for high willingness	
9.0 The desktop computer (PC) in general and other computer hardware components seen above whether new or old	
9.1 The local are network (LAN)	
9.2 The wide area network (WAN)	
9.3 Computer communication facilities	
9.4 The internet facilities.	

Interest/ curiosity in using ICT in learning

Please note that the level of interest is different from the level of willingness. With interest we want to establish the student's level of curiosity, concentration, awareness and attention in the use of ICT in learning.

Please indicate the extent to which you are interested in using ICT facilities below in your University. Your respective answers will range from 1 – 3. i.e put 1 for low interest. put 2 for medium interest, and 3 for high interest.	
ICT components	
10.0 Are you interested in using the desktop computer (PC) and other hardware components seen above whether new or not?	
101 Are you aware of the significance of the Local Area Network (LAN)?	
10.2 Are you aware of the significance of the Wide Area Network (WAN)?	
10.3 Are you aware of the African Virtual University (AVU)?	
10.4 Are you curious in finding out information using internet facilities?	
10.5 Do you put attention on learning new computer programs?	
10.6 How often do you visit computer labs in your University in a week?	

Thank you for your time, energy and co-operation. Now that you have finished answering, may you pass it on to .....

Appendix B: Interview schedule

The relationship between personal characteristics and adaptation to ICT in learning in selected universities in Kampala Region.

An interview schedule to students' leaders

1. What is your age?
2. Can you please describe your income background?
3. What is your employment status if any? Does it provide you with some income and time to access ICT in commercialized and or non-commercialized ICT centers?
4. What points did you get at Advanced level? What was your grade in Uganda Advanced Certificate of Education at Ordinary level? How is your current performance at the University?
5. Do you have any qualification in an ICT related field?
6. Do you read ICT related magazines, journals, articles etc…?
7. How often do you visit computer labs in a week for learning purposes?
8. Are you willing and eager to use ICT in learning or you are reluctant?
9. Are you innovative/ change oriented in the use of ICT in learning? Do you have your own original way of teaching people about using computers? Do you support the modernism and advancement in the ICT World?
10. How would you rate your interest in using ICT in learning?
11. Are there any reasons why ICT facilities are more used by other students and not others?
12. What user problems do you face in your endeavor to use computers (ICT) in learning?

13. What is your personal attitude towards use of ICT in learning?
14. Do you have enough ICT storage services i.e. flash disk (Memory sticks), CD-ROMs, floppy disks etc. Do you have a personal computer/ laptop at your place of residence?
15. Do you always attend ICT related conferences/seminars/workshops at different conference centers?
16. Do you search for educative information using Internet or any other ICT facility?

Appendix C: Reliability analysis

RELIABILITY ANALYSIS

		Mean	Std Dev	Cases
1.	UIVERSIT	1.5652	.6624	23.0
2.	EDUC	1.0870	.2881	23.0
3.	LOCATION	1.5652	.7878	23.0
4.	MARITAL	1.2174	.5184	23.0
5.	EMPLOY	1.2609	.4490	23.0
6.	COURSE	2.0435	.9283	23.0
7.	GENDER	1.3043	.4705	23.0
8.	YEAR	1.2609	.6192	23.0
9.	AGE	1.5652	.7278	23.0
10.	INCOME	2.4783	.7305	23.0
11.	SOCIAL	1.1739	.3876	23.0
12.	UNIVER	1.3043	.5588	23.0
13.	ADVANCED	1.3043	.5588	23.0
14.	ORDINARY	1.2609	.6192	23.0
15.	PRIMARY	1.0870	.4170	23.0
16.	OLEVEL	1.7826	.9023	23.0
17.	ALEVEL	1.3478	.6473	23.0
18.	ICT	1.1739	.3876	23.0
19.	RESIDE	1.2174	.4217	23.0
20.	DESK2	2.0435	.9283	23.0
21.	PRINT2	2.4783	.8458	23.0
22.	SCAN2	2.4783	.8980	23.0
23.	FLOP2	1.4783	.7305	23.0
24.	ZIP2	2.7391	.5408	23.0
25.	OPS	2.2174	.9514	23.0
26.	UTILITY	2.6522	.5728	23.0
27.	WORD	1.8696	.9197	23.0

28.	SPREAD	1.2174	.5184	23.0
29.	DATA	1.5652	.7278	23.0
30.	DESK3	1.5652	.6624	23.0
31.	STATIS1	1.4348	.6624	23.0
32.	GRAPH	1.2609	.4490	23.0
33.	WEB3	1.5652	.6624	23.0
34.	EMAIL	1.1739	.4910	23.0
35.	WIDE	1.5652	.7878	23.0
36.	ELECT	1.2174	.5184	23.0
37.	COMPUT	2.0435	.8779	23.0
38.	VIDEO	2.0435	.9283	23.0
39.	ELECT2	1.6522	.7751	23.0
40.	ELECT3	1.2609	.6192	23.0
41.	PERSON	1.5652	.7278	23.0
42.	SCHOOL	2.4783	.7305	23.0
43.	WIDE2	1.1739	.3876	23.0
44.	AFRICA	1.3043	.5588	23.0
45.	INTERN	1.3043	.5588	23.0
46.	ICT2	1.2609	.6192	23.0
47.	COPING	1.0870	.4170	23.0
48.	EXCEL	1.7826	.9023	23.0
49.	EASY1	1.3478	.6473	23.0
50.	EASY2	1.1739	.3876	23.0
51.	EASY3	1.5652	.6624	23.0
52.	ACCESS	1.2174	.4217	23.0
53.	ADVAN	2.0435	.9283	23.0
54.	PATIET	2.4783	.8458	23.0
55.	IMPATIET	2.4783	.8980	23.0
56.	CHANGE	1.4783	.7305	23.0
57.	INNOVAT	2.7391	.5408	23.0
58.	PROGRESS	1.5652	.7278	23.0

59.	SUPPORT	2.2174	.9514	23.0
60.	FULLY	2.6522	.5728	23.0
61.	MAKE	1.8696	.9197	23.0
62.	ENSURE	1.2174	.5184	23.0
63.	COPE2	1.5652	.7278	23.0
64.	DESK4	1.5652	.6624	23.0
65.	LOCAL	1.4348	.6624	23.0
66.	WIDE4	1.2609	.4490	23.0
67.	COMPUT4	1.5652	.6624	23.0
68.	INERNET4	1.1739	.4910	23.0
69.	COMPUT5	1.5652	.7878	23.0
70.	INTEREST	1.2174	.5184	23.0
71.	AWARE	2.0435	.8779	23.0
72.	AWARE2	2.0435	.9283	23.0
73.	AWARE3	1.6522	.7751	23.0
74.	CURIOUS	1.2609	.6192	23.0
75.	PUT	1.5652	.7278	23.0
76.	OFTEN	2.4783	.7305	23.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	124.9130	277.0830	16.6458	76

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
UIVERSIT	123.3478	269.3281	.3365	.8807

EDUC	123.8261	278.0593	-.1102	.8836
LOCATION	123.3478	265.7826	.4158	.8796
MARITAL	123.6957	266.8577	.5878	.8788
EMPLOY	123.6522	276.7826	.0066	.8834
COURSE	122.8696	256.2095	.6734	.8756
GENDER	123.6087	270.7945	.3918	.8806
YEAR	123.6522	272.5099	.2049	.8821
AGE	123.3478	263.6008	.5481	.8782
INCOME	122.4348	268.1660	.3504	.8805
SOCIAL	123.7391	277.8379	-.0701	.8837
UNIVER	123.6087	268.3399	.4605	.8798
ADVANCED	123.6087	270.6126	.3350	.8809
ORDINARY	123.6522	265.5099	.5545	.8786
PRIMARY	123.8261	273.7866	.2263	.8819
OLEVEL	123.1304	288.7549	-.4072	.8910
ALEVEL	123.5652	270.8024	.2752	.8814
ICT	123.7391	269.2925	.6007	.8796
RESIDE	123.6957	273.5850	.2380	.8818
DESK2	122.8696	267.1186	.3000	.8812
PRINT2	122.4348	268.7115	.2761	.8815
SCAN2	122.4348	272.8933	.1140	.8838
FLOP2	123.4348	270.8024	.2390	.8818
ZIP2	122.1739	276.7866	.0002	.8838
OPS	122.6957	268.4032	.2494	.8820
UTILITY	122.2609	278.4743	-.0899	.8847
WORD	123.0435	263.2253	.4360	.8792
SPREAD	123.6957	271.4032	.3168	.8811
DATA	123.3478	284.5099	-.3241	.8881
DESK3	123.3478	265.2372	.5287	.8787
STATIS1	123.4783	266.8972	.4504	.8795
GRAPH	123.6522	269.1462	.5251	.8797

WEB3	123.3478	269.3281	.3365	.8807
EMAIL	123.7391	274.2016	.1624	.8823
WIDE	123.3478	265.7826	.4158	.8796
ELECT	123.6957	266.8577	.5878	.8788
COMPUT	122.8696	272.4822	.1321	.8835
VIDEO	122.8696	256.2095	.6734	.8756
ELECT2	123.2609	266.3834	.3991	.8799
ELECT3	123.6522	272.5099	.2049	.8821
PERSON	123.3478	263.6008	.5481	.8782
SCHOOL	122.4348	268.1660	.3504	.8805
WIDE2	123.7391	277.8379	-.0701	.8837
AFRICA	123.6087	268.3399	.4605	.8798
INTERN	123.6087	270.6126	.3350	.8809
ICT2	123.6522	265.5099	.5545	.8786
COPING	123.8261	273.7866	.2263	.8819
EXCEL	123.1304	288.7549	-.4072	.8910
EASY1	123.5652	270.8024	.2752	.8814
EASY2	123.7391	269.2925	.6007	.8796
EASY3	123.3478	272.6008	.1849	.8823
ACCESS	123.6957	273.5850	.2380	.8818
ADVAN	122.8696	267.1186	.3000	.8812
PATIET	122.4348	268.7115	.2761	.8815
IMPATIET	122.4348	272.8933	.1140	.8838
CHANGE	123.4348	270.8024	.2390	.8818
INNOVAT	122.1739	276.7866	.0002	.8838
PROGRESS	123.3478	263.8735	.5363	.8783
SUPPORT	122.6957	268.4032	.2494	.8820
FULLY	122.2609	278.4743	-.0899	.8847
MAKE	123.0435	263.2253	.4360	.8792
ENSURE	123.6957	271.4032	.3168	.8811
COPE2	123.3478	284.5099	-.3241	.8881

DESK4	123.3478	265.2372	.5287	.8787
LOCAL	123.4783	266.8972	.4504	.8795
WIDE4	123.6522	269.1462	.5251	.8797
COMPUT4	123.3478	269.3281	.3365	.8807
INERNET4	123.7391	274.2016	.1624	.8823
COMPUT5	123.3478	265.7826	.4158	.8796
INTEREST	123.6957	266.8577	.5878	.8788
AWARE	122.8696	272.4822	.1321	.8835
AWARE2	122.8696	256.2095	.6734	.8756
AWARE3	123.2609	266.3834	.3991	.8799
CURIOUS	123.6522	272.5099	.2049	.8821
PUT	123.3478	263.6008	.5481	.8782
OFTEN	122.4348	268.1660	.3504	.8805

Reliability Coefficients

N of Cases = 23.0 N of Items = 76

Alpha = 0.8827

Appendix D: Validity of the questionnaire

Rater	Relevant	Not Relevant	Total
Rater 1	74	2	76
Rater 2	61	15	76
Total	135	17	152

$$CVI = \frac{\text{Total relevant items}}{\text{Total items rated by two raters}} = 135/152$$

CVI = 0 .8882

Appendix E: Introductory letter

MAKERERE UNIVERSITY

P. O. Box 7062 Kampala-Uganda
E-Mail: deaneduc@mak.ac.ug

Tel: 256 - 41 -540733
Cables:"MAKUNIKA"

DEAN'S OFFICE
SCHOOL OF EDUCATION

Your Ref:

Our Ref:

Date: 30/11/2005

TO WHOM IT MAY CONCERN

Mr./~~Mrs./Ms./Sr./Rev./Fr~~ NAMUKANGULA JUDE KIZITO is our ***M.A. (Education Policy and Planning)/ M.A. (Ed.Mgt.)/ M.Sc.(HRM)/ M.Ed.(ICT)*** Degree student who is collecting data for his/her Dissertation titled:

RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS AND ADAPTATION TO ICTs IN LEARNING IN SELECTED UNIVERSITIES IN KAMPALA REGION.

We shall be grateful if you could render assistance to him/her in collecting the necessary data for his/her Dissertation.

Thank you in advance for your assistance.

Dr. C. M. Ssebbunga
Dean, School of Education

MAKERERE UNIVERSITY
SCHOOL OF EDUCATION
04 MAY 2005
DEAN'S OFFICE