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ICT Uptake and Use as a Tool for Personal Adjustment and Academic Pursuit among Undergraduate Students at Kenyatta University

Elishiba Kimani *[1], Tabitha Wangeri [2], Samuel Mutua Mutweleli [3]

[1] *Kenyatta University, Department of Gender and Development Studies, P. O. Box 43844-00100, Nairobi-Kenya.*
[2,3] *Kenyatta University, Department of Educational Psychology, P. O. Box 43844-00100, Nairobi-Kenya.*

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ABSTRACT

The intention of this paper was to explore ICT uptake and use as a tool for personal adjustment and academic pursuit undergraduate students at Kenyatta University in Kenya. To establish this, the study sought to investigate on the first years' students ICT basic computer proficiency and the challenges the students experienced in up taking ICT at high schools and universities. The study was done in Kenyatta University, a public university in Kenya among first year students taking Bachelor of Education degree. A total of 104 students were randomly selected and data generated using a questionnaire. The results indicate that majority of students had experienced challenges up-taking and using ICT in the university. Only a few students owned computers. Few students had, with female students being more than males. Proficiency by age was also low. By degree program Joint Admission Board (JAB) students reported higher proficiency than those in Self Sponsored Programme (SSP). There were also differentials of proficiency in terms of categories of high schools attended and rural versus urban. Among the challenges reported were inadequate number of computers, faulty computers and computer illiteracy. They recommended that the university could offer ICT classes and increase the number of computers to enable them to become ICT proficient. The study recommends that the ministry of education should make it mandatory for all secondary schools to have ICT infrastructure and teachers trained in ICT in all secondary schools.

Introduction

Proficiency in information and Communication Technology has emerged as an important tool for university students efficiency in learning, social interactions and self-fulfillment. On the same note, Bates (2004) takes an extreme position by observing that universities must either make the ICT transition or die. Selwyn (2007) concurs in his observation that ICT has many benefits as it helps accelerate universities' students learning, support interactivity and basically bring a change to university administration, teaching and learning process.

Long before the student reports at the university they should have a certain level of ICT proficiency, since information regarding courses, application forms, important dates, and other requirements are accessed through individual university websites. In addition to this, on joining university, students are expected to do their registration on line, in addition to having to learn some units on line. These requirements compel the student to interact with ICT well before joining and also early in the university life. Thus, taking advantage of virtual learning environments like the Blackboard and the Moodle which injects flexibility in university teaching and learning calls on students to have high levels of ICT proficiency, a fact well recognized by Selwyn (2007). Further to these students need ICT to complement what they learn and according to Adetimirin (2011) it helps them to complete assignments and undertake projects and write ups. This is in agreement with Beetham, McGill and Littlejohn (2009) who purport that the digital domains have a significant potential in support of learning in formal domains. Mlitwa (2004) concurred with the sentiments expressing that ICT has the capacity to enhance teaching and learning through improved interaction across cultures, between students and academics.

Despite the expectations, ICT uptake by students to access relevant information and as a tool for academic growth may not be as per the expectations, an argument advanced by Belland (2009). Thus the degree of students' competence in ICT before joining the university comes into sharp focus. A study by Mwaura (2012) found low levels of ICT use among primary school, secondary school and teachers in teacher training colleges in Kenya. This has been confirmed elsewhere by Lim & Kline (2006); Rosen & Weil (1995) and Anderson (2006) reporting that secondary schools demonstrated low levels of computer utilization in elementary and secondary school teaching and learning.

* Corresponding author.
Email address: elishibakimani@yahoo.com

More over there is evidence that even at the university level, ICT technologies which are expected to bring a revolution in university teaching and learning fall short of the expectations (Selwyn, 2007).

Although the world has put pressure for people to become ICT compliant for several decades now there is evidence that the transition to ICT has not been uniform due to several barriers that interfere with ICT penetration. The barriers have been identified as the social environment and gender (Hargittai (2010), due to the fact that ICT is taken to be a masculine activity, boys have more access to technology at home than girls from an early age. Girls have no hands-on experience in technology. Further ICT comes with a financial cost which hinders ICT penetration to the individual as well as challenges to do with Electricity inaccessibility. As further observed by Nomusa Dlodlo (2009), there is also need to create an enabling environment for effective uptake of ICT.

Other issues of concern are to do with rural-urban divide, cost of hardware and soft ware, gender, availability of computers and instructors' knowledge in computer use in schools and universities. Additionally, students come from diverse backgrounds with various degrees of ICT penetration which may not be the same across the students' background prior to reporting at the university. Al-Senaidi et al., (2009) established that lack of institutional support and time was a challenge.

Given the current demand for the ICT in the learning and teaching process, the university's expectation is that all the students joining first year have acquired ICT competencies somewhere along their high school career. Available literature seems to point to the fact that although students joining university may be proficient in using mobile phones and internet, they do so for social reasons rather than to support their academic pursuits **(**Sainz & Lopez-Saez (2009). Without determining the levels of ICT efficacy students possess at the time of joining university, educators may erroneously imagine that students do not need further preparation in ICT uptake for academic life.

Statement of the Problem

Students joining Kenyan Universities are drawn from different school and social backgrounds and as demonstrated above, they have disparities in their exposure to and uptake of ICT. While some of them have been exposed to ICT in their former schools and have the advantage of coming from social economic background that support ICT uptake, other students come from homes and schools that have not exposed them to the use of ICT, a concern that grounded the problem of this study. The main purpose of the study was thus to explore the Kenyatta University first year students' efficacy in the use of ICT as a tool for personal adjustment and academic advancement. The justification for this is that universities should first establish students ICT competencies before expecting them to take up courses through computer technology. Supporting the same, Heemskerk, I., Brink, A. Volman, M., & Dam, G. (2005) assert that ICT can facilitate learning or inhibit it if important learner characteristics are not put into consideration.

Study Objectives

The main objective of this study was to establish the ICT uptake and use as a tool for personal adjustment and academic pursuit, among first year students at Kenyatta University. Specific objectives were to:

i. Establish the competencies in ICT that first year students have as they join university.
ii. Identify the barriers to ICT uptake in public universities
iii. Identify the strategies that the universities should put in place.

Theoretical Framework

The study was informed by Staples & Sedon (2004) model on the 'Testing the technology-to-performance chain'. As shown in figure, the model demonstrates various tasks, technological and individual characteristics determine task technological fitness which in turn impact performance and utilization of technology. Precursors of utilization are identified as expected consequences of use represented by individual's beliefs, social norms, and habit as well as facilitating conditions. For the ICT uptake, the facilitating conditions can be availability of the physical space, computer laboratories, equipment, software and time

International Journal of Economy, Management and Social Sciences, 2(6) June 2013

Task technological fitness

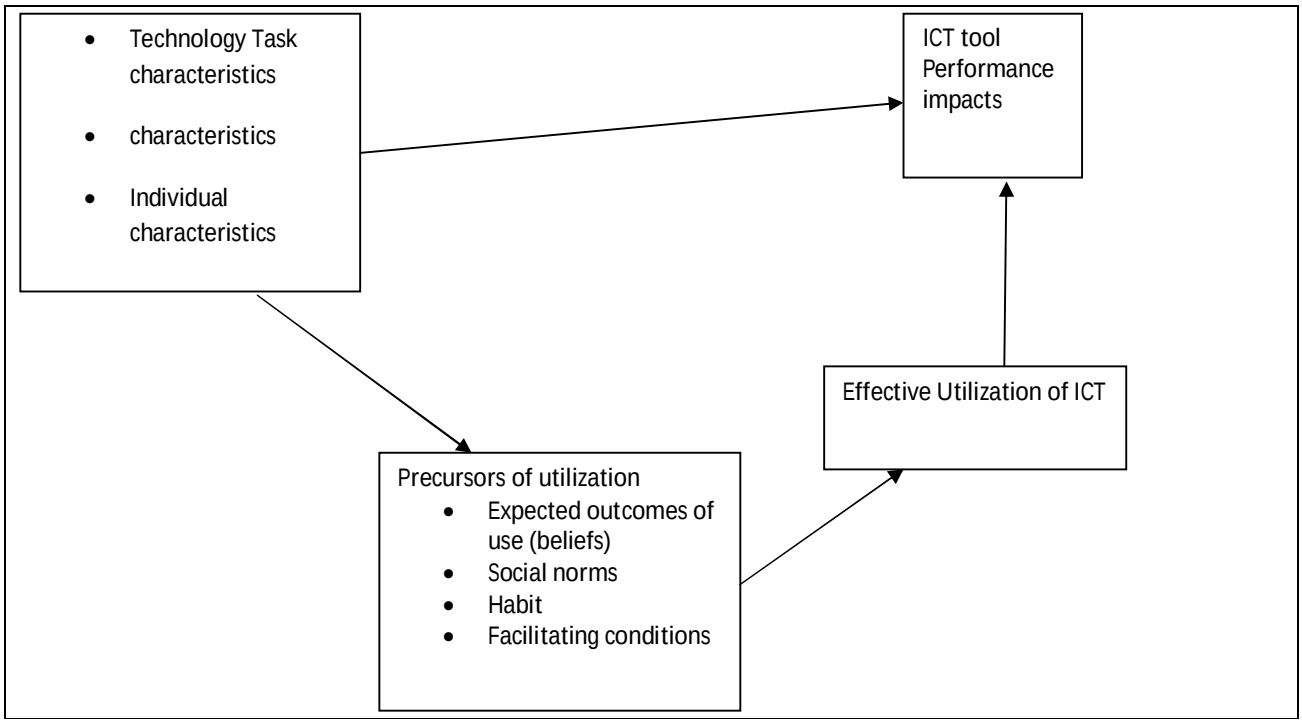

Figure 1. ICT performance chain (adapted from Staples & Seddon (2004)

Conceptual Framework

First year students entering university with ICT proficiency have an edge over their counterparts without ICT proficiency. They are able to access information on line, register for units and down load learning material. They are also able to do independent search of materials to improve their knowledge base which may translated to good grades, improved self esteem and good adjustment to university life in general. On the other hand, students who enter university without the necessary ICT competency encounter difficulties in all the areas that require various levels of ICT proficiency. Such students need help download and upload vital information. Consequently they encounter challenges which may harm not only their grades but their self-esteem as well.

Study Methodology

Kenyatta University was purposively selected for this study. This is because it is not only one of the biggest public universities in Kenya but also one of the leading universities in the Republic. First years students from the Kenyatta University School of Education were purposely sampled since this is the largest school in the university. Data were collected from the first year students of the school of education within the first month since joining the university. Then the study focused on the first year students in the regular mode of learning. Since the regular students are admitted through two modes, the Joint Admission Board (JAB) and through the Self-Sponsored Program (SSP), a total of 104 first year students were sampled from the school of education out whom 58 were JAB and 46 were in SSP. Stratified sampling technic was used where the list of admitted students in the school of education formed the sampling frame. A questionnaire was used to generate the required data.

Study Findings

ICT uptake and use as a tool for personal adjustment and academic pursuit among first year students in Kenyatta University were studied on the basis of computer skills, access to computers, ICT proficiency and use of computers to support studies. The following are the study findings on the basis of which the conclusions and recommendations were drawn.

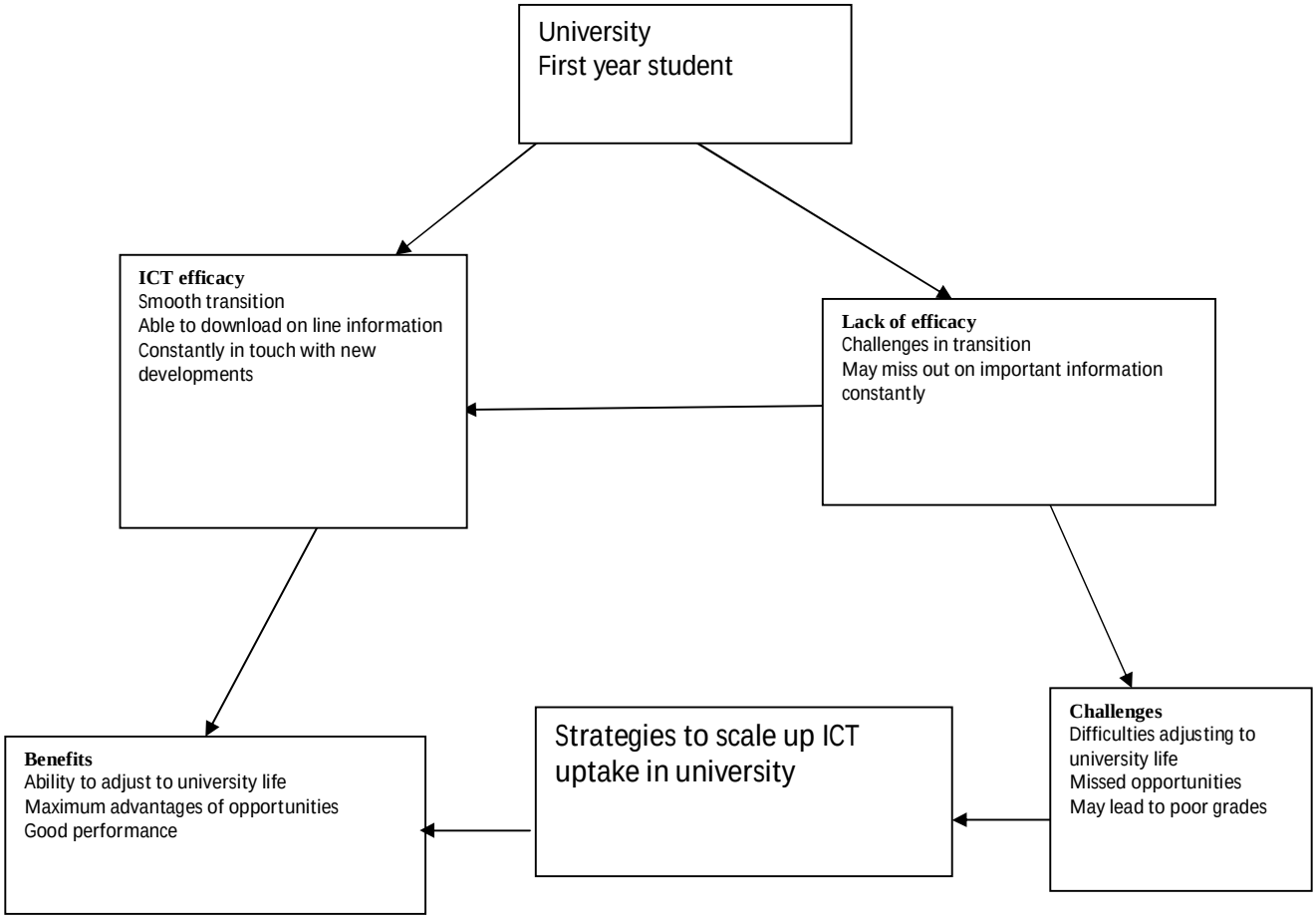

Figure 2. Scaling up ICT uptake for first year students in public universities

Basic Computer Skills

The study was interested in establishing the computer skill the first year students possessed during their first month of university life. This was meant to reveal if the students had interacted with computers well enough to enable them to access vital information as well as take units on-line. Students were asked to indicate the basic computer skills they were competent in among Ms Word, Ms Excel, Ms Access, power point presentations, internet and email, adobe page maker and Ms Publisher. This was intended to reflect the basic skills they possessed and which they would build upon to enable them embrace e-Learning and access information to support their learning in the university. As shown in figure 3, few students possessed basic computer skills, as only 23.4% were competent in Ms Word, 19.8% Ms Excel, 17.9% Ms Access, 16.5 % power point, 18.3 internet and e-mail, 1.1% abode page maker and 2.9%Ms Publisher.

The low percentages of students with basic computing skills reveal that majority of students had inadequate ICT uptake and hence lacked the ICT skills as they entered university. This is a concern as it is a pointer that majority of students are ICT challenged and may therefore need assistance to access important information pertaining to their academic life, especially on-line information on the courses on offer, admission requirements, university calendar and deadlines.

Access to Computers

The study sought to establish whether the first year students had access to computers prior to joining university, if they had a personal computer or laptop or if they relied on cyber cafes for computer services. As shown in figure 4 majority of students (80.2 %) relied on cyber cafes for computer services while only 13.2 had a computer at home. Further the results revealed that while 4.4% of students under the study had personal laptops 2.2% had personal desk top computers.

The very few percentages of students with access to personal computers or were the only ones who could be considered to have had a degree of readiness for the ICT requirements of the universities. The majority of students who could only access computer services from cyber cafes stood disadvantaged as there was cost implications which could have been a challenge.

International Journal of Economy, Management and Social Sciences, 2(6) June 2013

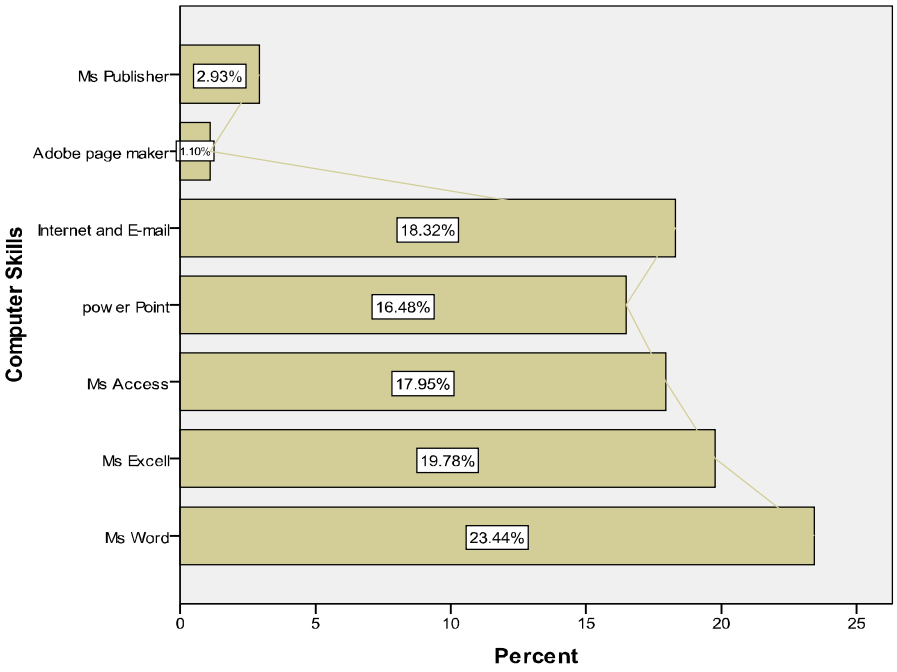

Figure 3. Number of first year students with basic computer skills

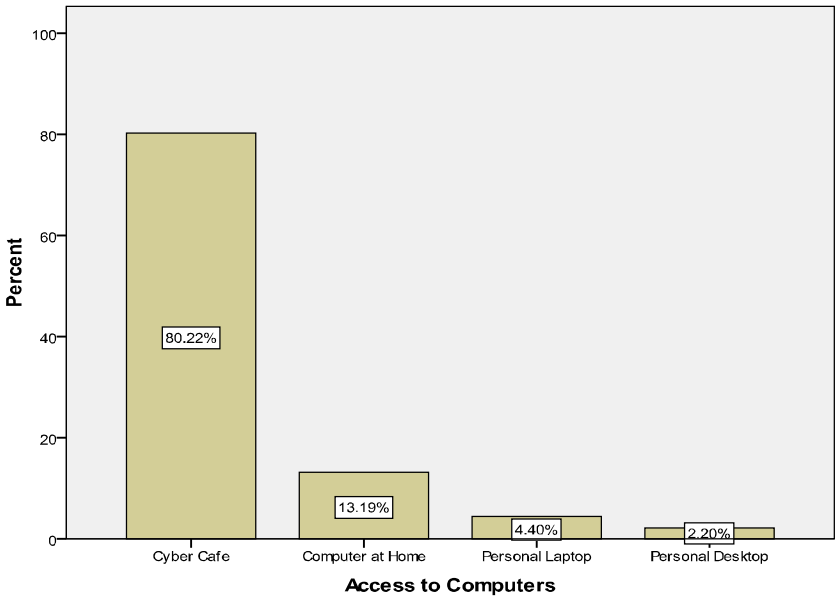

Figure 4. Number of students with access to computers

Level of ICT proficiency

Students were expected to indicate if they had knowledge of computer parts and if they could operate a computer. Further to this students were asked if they could create documents, store and retrieve them from various computer storages, if they had email accounts and if they had accessed the accounts in the last 24 hours prior to the study. They were also asked to indicate if they had used social media in the last 24 hours prior to data collection. This was important because to make smooth transition to university life basic proficiency in computer skills is a requirement. Results presented in figure 5 reveal that 31.7% of students have low levels of ICT proficiency while 35.6% of students have average proficiency. Only 32.7% of students reported having high level of ICT proficiency

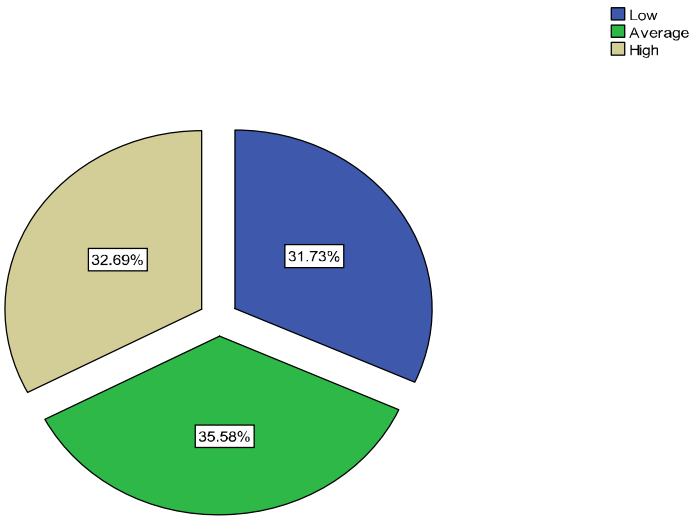

Figure 5. levels of ICT proficiency

The study was interested to find out if the first year students had basic computer skills as they entered university. The low levels of ICT proficiency indicated that majority of the students were not exposed to the ICT in their High school life, before joining university. These findings are consistent with Ogwu et., al. (2010) who reported that fresh undergraduates in Botswana University had low ICT proficiency. In addition Adetimirin (2011) reported low use of ICT among students in Nigerian universities.

Use of Computer to Support Study at the University

The study was interested in establishing if the students were able to use ICT to support study at the university. To establish this, students were asked to indicate if they have the competencies to access university's web page for information and if they were able to register on-line. In addition to this the students were asked if they were able to type and submit assignments on-line and if they were comfortable taking some of the units on-line. The objective of the study was to establish ICT proficiency to support study at the university by gender. The results were analyzed on the basis of gender as shown in figure 6. Thus 17.3% of males and 14.4% of females reported low ICT proficiency to support study at the university while 17.3% of males and 18.3% of females reported average proficiency. Further to this 13.3% of males and 19.2% of females reported high proficiency in ICT to support study at the university.

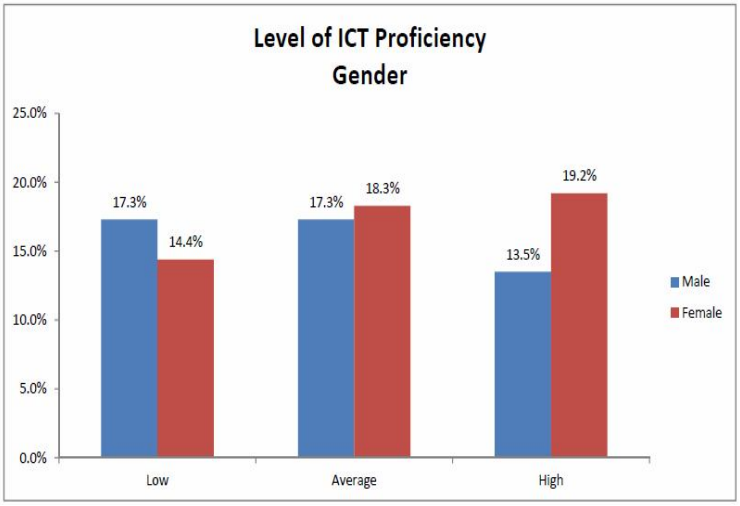

Figure 6. ICT proficiency by gender

International Journal of Economy, Management and Social Sciences, 2(6) June 2013

It is interesting to note that unlike the popular findings in other studies, female students with ICT proficiency to support study at the university outnumber their male counterparts. However, from the overall picture the percentages of students with ICT proficiency to support studies at the university are relatively small.

Other studies on gender differences in ICT use indicate a decline of women in computing courses in higher education (Sainz & Lopez-Saez, 2009). Women are also reported to have more negative attitudes towards computers than men Ayalon (2003), Zarrett & Malanchuk, 2005). Still other studies have identified gender differences in the use of computer with female using computers to complete tasks while males use them as recreational devices (Hou 2006 & Erstal, 2006).

ICT Proficiency by Age

Figure 7 shows the ICT proficiency by age. According to the results 16.3% of students below 20 years and 20.2 % between 20-25 years reported low proficiency while 23.1% below age 20 and another 21.1) between 20-25 years as well 2.9% above age 25 reported average ICT competence. Those reporting high competence were 5.8% below age 20, 7.7% 20-25 years and 1.0% above age 25.

These results are a further indicator that students entering university lack the ICT proficiency they need to effectively embark on the academic program. These findings are consistent with Selwyn (2007) who averred that although ICT is a central tenet to university teaching and learning many students and faculty make only limited use of ICT. In agreement with this is Adetimirin (2011) who suggests that universities must introduce courses in ICT competency to all students especially first year and they should also encourage lecturers to use ICT for learning and teaching.

3.6 ICT Proficiency by the Degree Program

The study was further interested in establishing ICT proficiency alongside the program of study. The results presented in figure 7 reveal that14.4% of self sponsored students and 22.1% of JAB students reported to have low ICT proficiency while 22.1 % and 26.9% of SSP and JAB respectively reported to have average ICT proficiency. In addition to this 6.5% and 7.7% of SSP and JAB respectively reported to have high levels of ICT proficiency.

Although the percentages of students with high ICT proficiency were slightly higher among JAB students than among SSP students the overall percentages of students with high ICT proficiency are negligible. This further confirms that the students are ICT challenged.

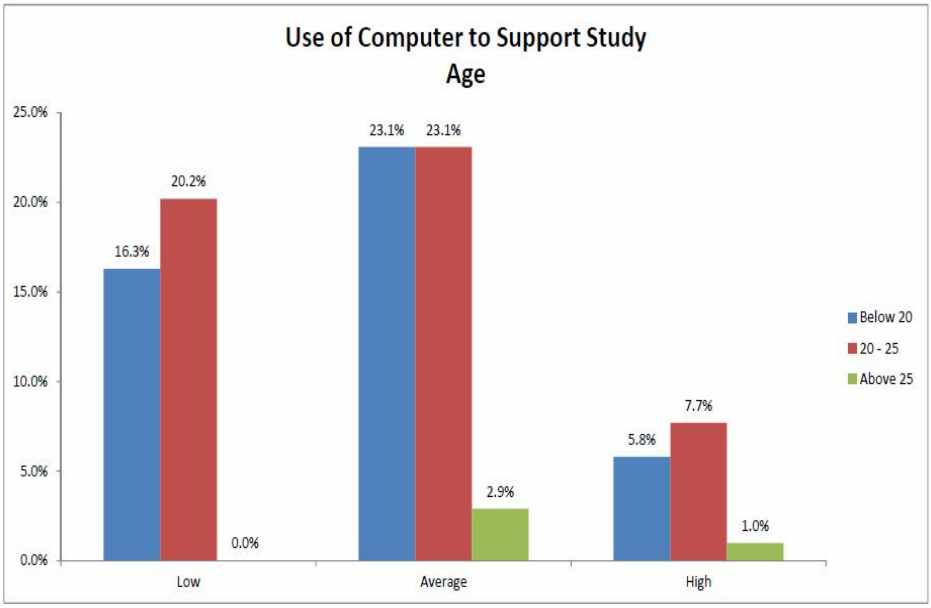

Figure 7. Use of computer to support study by age

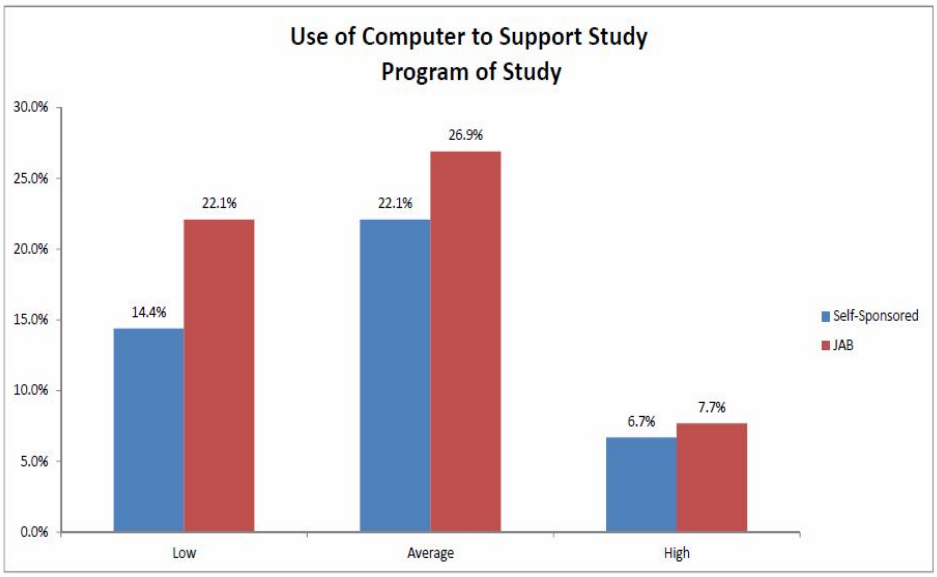

Figure 8. Use of computers to support study according to mode of study

Use of Computer to Support University Study by High School category

The results analysis considered the categories of selected high schools, namely national, provincial, district and private. The study was interested in finding out the use of computer to support study in relation to the category of the high schools students attended prior to joining university. This was meant to reveal ICT penetration across the various levels of schools.

Results in figure 8 reveal that, 1.9%, 5.8% and 0% of students from national schools reported to had a low, average and high use of computer respectively. Students from District schools reported that 15.4%, 20% and 7.7% had low, average and high computer use respectively. From the District category of schools, 17.3%, 18.3% and 6.7% of students reported to have had low, average and high use of computers respectively. Among the students who attended private schools 19%, 4.8% and 0% reported to have had low, average and high use of computers in that order.

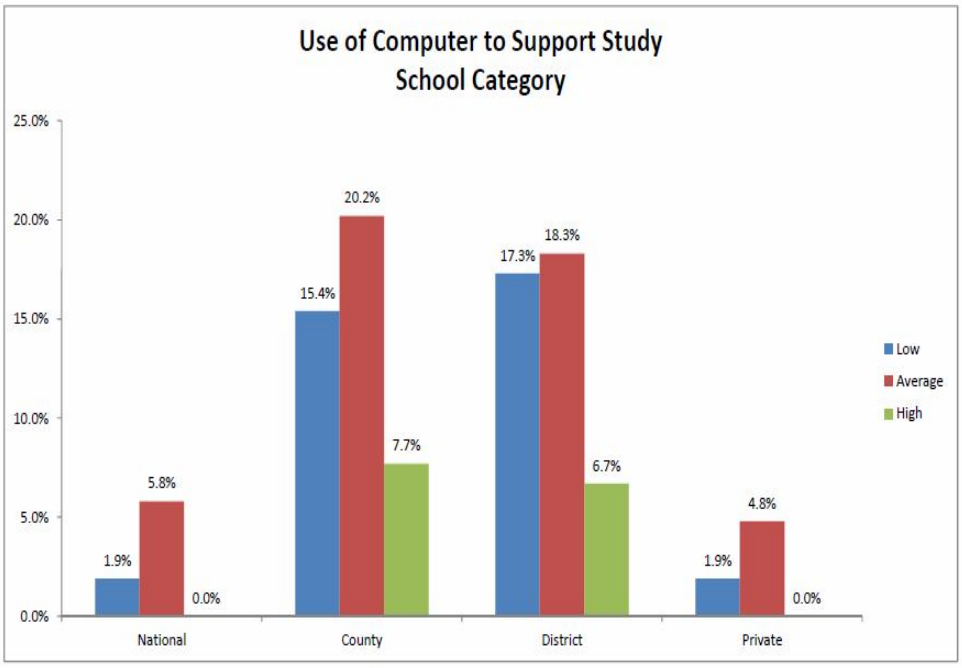

Figure 9. Use of computers to support study program by school category

International Journal of Economy, Management and Social Sciences, 2(6) June 2013

The findings indicated that National schools have the fewest students with computer skills to support university which would be contrary to expectations. Since these schools admit the country's top students, they are expected to produce well rounded students even as far as computer use is concerned. The students joining university from private schools also reported equally low numbers of students with computer skills to assist in university study. This pauses the question of ICT penetration across high school and points at a disconnect between the ICT skills students are expected to have on university entry and the skills the students are equipped with before leaving high school. The findings are consistent with Mutula (2010) who found that first year students who joined University of Botswana directly from secondary schools were ICT illiterate a situation that caused challenges to learning in the university.

Use of ICT to Support Study at the University

Data presented in figure 9 reveals that only 14.9% of students reported to have high proficiency in ICT to support study against 35.54% reporting average proficiency while 49.04 reported low ICT proficiency to support study.

The study was interested in establishing the number of students with ICT proficiency to support study at the university. The low numbers of students with ICT proficiency to support study at the university are indicative of challenges students experience in ICT uptake and use a situation that still rings true in universities elsewhere as Selwyn (2007); Ogwu, (2010); Mutula (2010); Adetimin (2011) decries in terms of the marginalization of ICT within students' lives experience and lament the poor ICT literacy among students in Universities in Nigeria and Botswana respectively among first year students.

Level of ICT Proficiency by the Degree Program

The study further sought to establish the level of ICT proficiency in relation to the degree program. In the school of education that was selected for this study, students pursue either Bachelor of Education Arts BEd (Arts) or Bachelor of Education Science BEd, (Science). Results presented in figure 10 reveal that 15.4% and 16.3% of students in BEd (Arts) and BEd (science) reported to having had low levels of ICT proficiency respectively. Students reporting to have had average ICT competencies from BED arts and BED science were 20.2% and 15.4% respectively. The students who reported to have high ICT proficiency were 14.4% and 18.3% of BEd (arts) and BEd (science) respectively.

From the results the students with low ICT proficiency was slightly higher among students pursuing Bachelor of Education (Science) alghough the difference is not significant. A higher percentage of students pursuing BEd (Arts) have average ICT proficiency than students pursuing BEd (Science) but a higher number of students in BED (science) had ICT proficiency than their BED (arts) counterparts. These results confirm further that the ICT proficiency is largely lacking among students entering university.

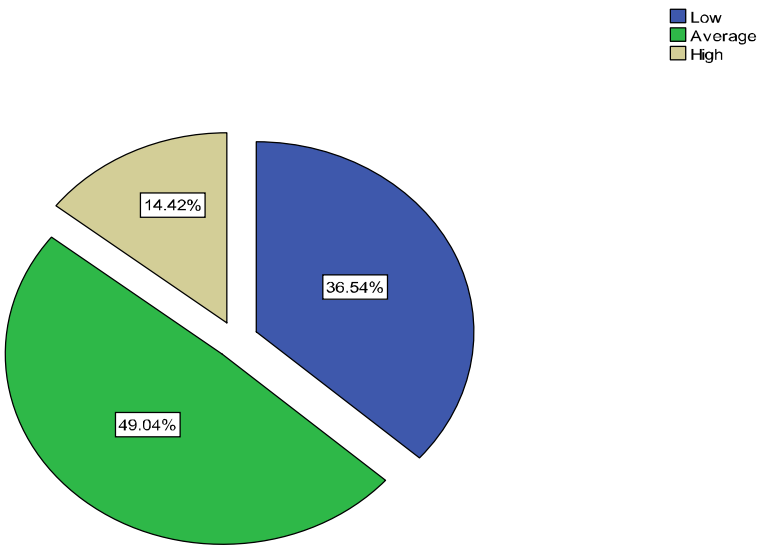

Figure 10. Proficiency in ICT to support study

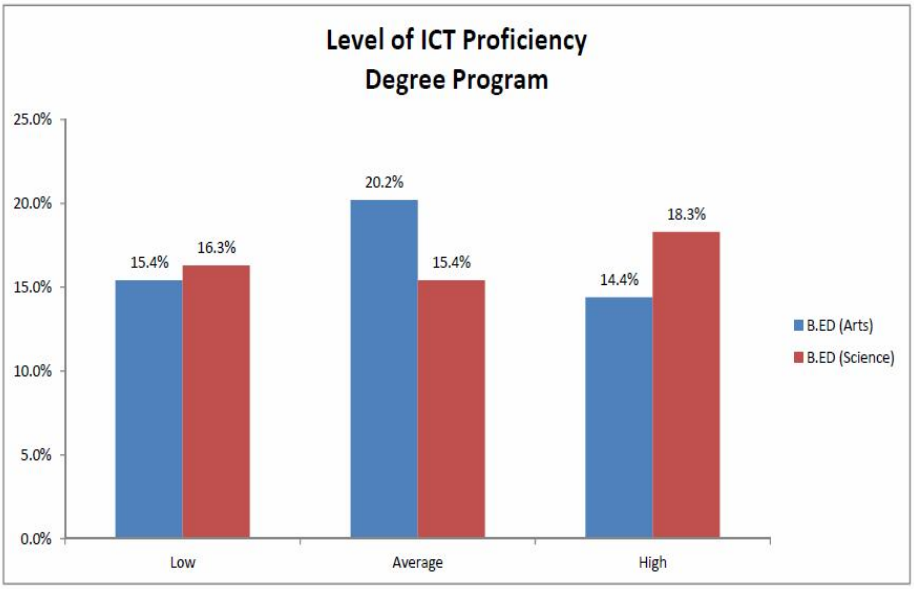

Figure 11. Level of ICT proficiency by degree program

Barriers to ICT Proficiency among First Year University Students

The study aimed at establishing what students thought were barriers to their ICT proficiency. The results presented in figure 11 show that 26.92% of students blamed their incompetence on computer illiteracy while 66.67% blamed it on inadequate numbers of computers and high cost of accessing internet. Still a further 6.41% reported that faulty computers and poor internet connectivity were to blame for their inability to use ICT as expected.

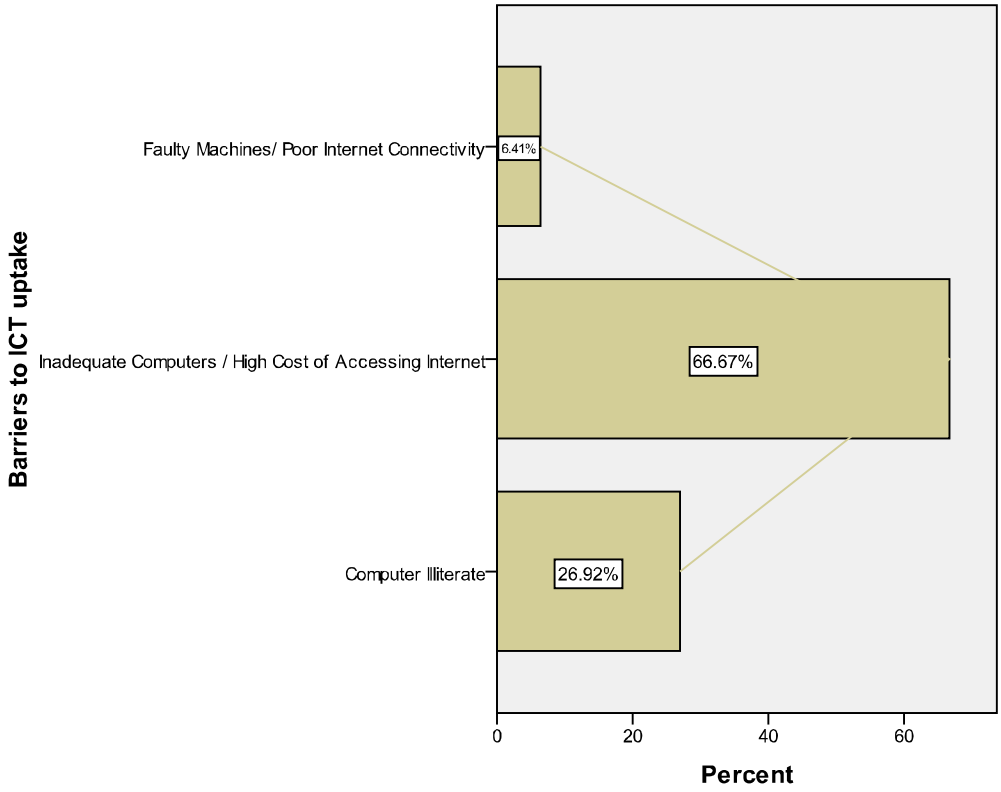

Figure 12. Barriers ICT proficiency

International Journal of Economy, Management and Social Sciences, 2(6) June 2013

As the results demonstrate, computer illiteracy continues to be a factor preventing students to join the digital divide as expected not only by the university but the world as well. High cost of computers and high cost of internet access compound the problem of ICT access among university students studied. Faulty computers are also seen as a barrier preventing students to access computers. These results may raise a concern in that globally, the university expects university students to be able to access computers and to be able to use them to undertake their studies and much more. The view expressed by Heemskerk, I., Brink, A. Volman, M., & Dam, G. (2005) is that ICT can facilitate learning or inhibit it if important learner characteristics are not put into consideration. They identified such factors as background, experiences, and needs of the students and purported that ICT which can bring inequality in education since some learners have computers while others do not. Some students have internet access while others do not bringing in the socio class factor. Heemskerk et al (2005) further indicate that the teacher may assume erroneously that all learners are computer competent a position that disadvantages the learners who do not have the competencies expected. They also observe another challenge in that the computers are not gender inclusive as the programs are tailored to interest boys than girls they further add.

3.10 Strategies for Improving ICT Skills

Students were asked to indicate what they should do to improve their computer skills. In response to this results presented in figure 12 reveal that 26.67% of the students reported that they would ask for assistance while 26.67% reported they would access computers more often and even visit cyber cafes. On the other hand only 0.67% of the students reported that they would enroll for computer classes and they would also learn how to study through e-learning.

It was the intention of the study to find out the strategies students should put in place to uplift their ICT proficiency. Students reported that they would seek assistance from more knowledgeable persons. They also reported that they access computers more often even if it meant visiting cyber cafes while others reported that they would enroll in e-learning and computer classes. The results demonstrate that students were aware of their competencies regarding ICT uptake and use and they were willing to take proactive steps to right the direction.

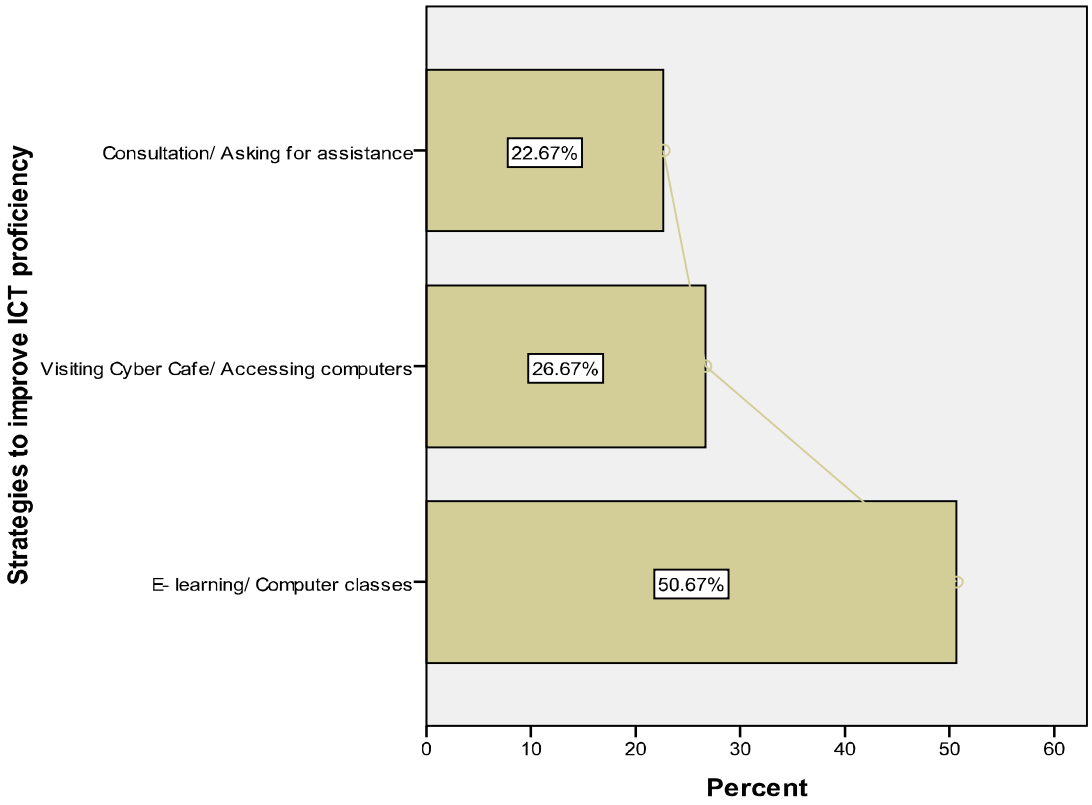

Figure 13. Strategies to improve ICT proficiency

Recommendations to Improve on Students ICT Uptake and Use as a Tool for Personal Adjustment and Academic Pursuit in the University

Students were asked to suggest what they thought the university should do to assist them become ICT. As shown in figure 13, 52.56% would like the university to offer ICT classes while 44.87% would like the university increase the number of computer laboratories. Only 2.57% of the respondents felt that the university should increase ICT staff, make introduction to computer studies compulsory and increase computer laboratories to cater for the ever increasing number of students.

Students were of the opinion that for the universities to scale up they may need to establish the students' entry behavior with regard to ICT proficiency and tailor courses that would equip them with the skills they need to use ICT for personal adjustment and as a tool for academic pursuit. Other recommendations were to do with what the Ministry of Education should do to enhance ICT uptake at the high school level. The study further recommends that computer literacy should be made a compulsory and examinable subject in secondary schools just like mathematics and English. This would ensure that all students joining university are proficient in ICT skills to manage their academic program. In addition the study recommends that universities should have ICT as a common unit taken by all first year students. The universities should further ensure that ICT infrastructure is in place with enough serviceable computers and technicians to attend to students needs.

Based on the study findings as well as the conclusions, this study recommends that:

i. The Ministry of Education should make it mandatory for all secondary schools to have ICT infrastructure and teachers trained in ICT in all secondary schools. This would be in agreement with recommendations made elsewhere by (Oye et., al. 2012). As such there may be need for universities to ascertain students ICT preparedness and mount computer literacy courses early in the students' university career.
ii. Because of the importance of ICT proficiency for university students this situation calls for measures aimed at reversing the low levels of ICT proficiency at several levels. Thus the high percentages of students with low ICT proficiency are indicative of the need to seek remediation for all students and ensure that they acquire the ICT skills they need.
iii. The study makes similar recommendations as those made elsewhere by Oye et al (2012) for universities in Nigeria and Adetimirin, (2011) that Universities must introduce ICT competency courses to all students, especially first year students and faculty must be encouraged to teach using ICT. For this to work, students are expected to enroll in computer classes to level that they should use ICT with ease and so that they can benefit from the virtual classrooms.
iv. Secondary schools should mount compulsory computer literacy courses in order to give the students the necessary preparedness as they exit high school

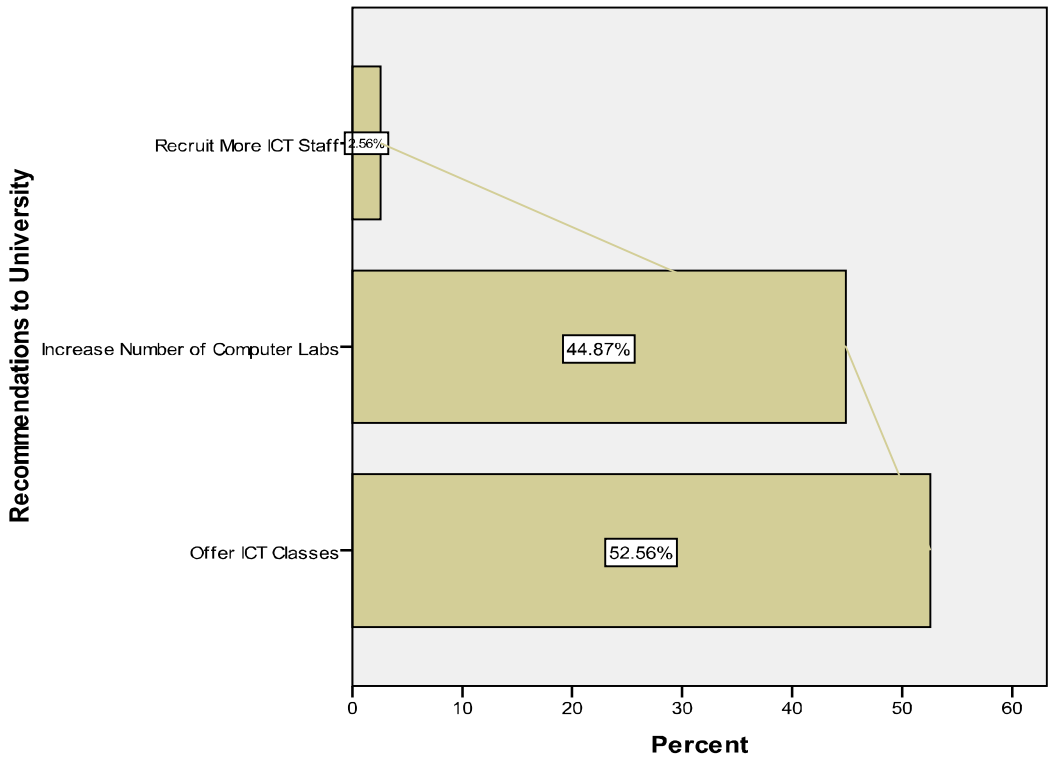

Figure 14. Recommendations to the university

International Journal of Economy, Management and Social Sciences, 2(6) June 2013

Conclusion

The results of the study indicated that the few first year students had the expected ICT proficiency in all the areas investigated that is; possession of basic computer skills, access to computers, general ICT proficiency and ICT proficiency to support study at the university. Although few students reported to have had high ICT proficiency to support their learning in the university, the results demonstrated that that contrary to popular belief more female students reported to have high ICT proficiency than their male counterparts. Further, few students reported having had high ICT proficiency by age, degree program and secondary schools attended. Students reported that inadequate computers, faulty computers and computer illiteracy constituted barriers to their ICT proficiency. The students indicated that they would enroll for ICT classes and the university should offer ICT classes and recommended that to boost their ICT proficiency.

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