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Research article

ICT USAGE/HABITS FOR TEACHING AND LEARNING IN UNIVERSITIES SIERRA LEONE (NJALA UNIVERSITY)

Abdul Joseph Fofanah

E-mail: **abduljoseph.fofanah@gmail.com**

Department of Mathematics and Computer Science

Milton Margai College of Education and Technology (MMCE&T)

E-mail: info@mmcet.edu.sl

Goderich Campus – Freetown

Sierra Leone.

Abstract

The study provides, a 'Survey Questionnaire' that was developed to investigate ICT usage/habits, perceived ICT competency, and related ICT issues that affect University students and Lecturers at Njala University. A descriptive survey method was used because it allows the researcher to pose a series of questions to willing participants, summarize their responses with percentages, frequency counts, or more rigorous statistics, and draw inferences about a particular population from the responses of the selected sample size.

The main focus of this research is to ascertain Information and Communication Technology (ICT) Lab Usage/Habits at Njala University. More specifically, this research assessed the user habits of digital media, primarily computers, tablets, smart phones and internet in order to facilitate teaching and learning at this tertiary institution.

The data collected was mainly presented by the use of quantitative statistical methods. Data from the open-ended questions were analysed by indicating the magnitude of responses viz-a-viz the total number of respondents to a particular option in a question. The responses from the structured questions were computed into frequency counts, percentages and charts. All the responses were summarized and tabulated for easy presentation, analysis and interpretation. However, the researcher further provides some recommendations that will facilitate the implementation of the research work.

The findings from the research revealed that ICT resources for teaching and learning are not adequately available (Chart 5.2.1.1). The available ICT resources are Internet/E-mail Services (48%), Department Computer Laboratory (42%), Proprietary Software and Printing and photocopying services (39%). The result also agrees with the findings of Ololube (2006) and Pelgrum (2012) whose research findings concluded that there is poor ICT resource integration and usage in most educational institutions in developing countries.

Even though the ownership of the hardware is low, a very high proportion (94%) agreed that there is a likelihood that they will use ICT at home and other commercial places if it is made available to them. The ownership of Smartphones among the respondents are high (72%), but it is mainly use for accessing social media networks like Facebook, WhatsApp, Twitter etc. Additionally, in a study conducted by Hisham et al (2006), it was clearly showed that students' sense of IT efficacy significantly affected their usage of such technology. The study finally concluded that students' sense of IT efficacy had a substantial indirect effect on their usage and satisfaction.

Key Words: Information and Communication Technology, Njala University, Availability, Accessibility, Electronic Learning, Sustainability, Inadequate Infrastructure and Usability

1. INTRODUCTION

Over the last few decades, ICT has become one of the most important tools in the teaching and learning environment. This is mainly due to the capability of ICT in providing a dynamic and proactive teaching and learning environment.

In most developed and developing countries, ICT has replaced traditional methods with modern tools and facilities that are basically geared towards improving and enhancing teaching and learning at educational institutions.

The main focus of this research is to ascertain Information and Communication Technology (ICT) Usage/Habits at Njala University (NU). More specifically, this research aims at assessing the usage/habits of digital media, primarily computers, tablets, smart phones and internet in order to facilitate teaching and learning at Njala University. Moreover, the objective of this paper is to identify the level of ICT integration in teaching and learning process at the above-mentioned academic institution.

A total of 192 Questionnaires was administered to third and final year clinical students at Njala University, Kowama Campus, at the School of Community Health Sciences in Bo. Additionally, a total of sixteen (16) questionnaires were also administered to the available teaching staff at Njala University.

2. PURPOSE

The main purpose of this study was to establish whether the available ICT infrastructures are adequate enough to meet the ICT needs of the University; and to find out whether the investment or adoption or improvement in "ICT-designed learning environment" will create the desired impact in the transfer of knowledge to the learner at the Njala University.

3. GENERAL OBJECTIVE

The general objective of the research was to ascertain whether the investment or improvement in "ICT-designed learning" will help to improve learning outcomes.

3.1 Specific Objective

The Specific Objectives of this survey are as follows:

1. To establish the availability of relevant educational ICT infrastructure within Njala University Campuses;
2. To find out whether the provision of equitable access to ICT enabled education and training in the University will help to improve learning outcomes; and
3. To determine whether the provision of affordable ICT infrastructure can facilitate dissemination of knowledge and skills through e-learning platforms.

4. METHODOLOGY

4.1 Survey Design

In this study, a 'Survey Questionnaire' was developed to investigate ICT usage/habits, perceived ICT competency, and related ICT issues that affect University students and Lecturers at Njala University. A descriptive survey method was used because it allows the researcher to pose a series of questions to willing participants, summarize their responses with percentages, frequency counts, or more rigorous statistics, and draw inferences about a particular population from the responses of the selected sample size.

4.2 Target Population and Sample Size

The targeted population for this survey was 3,240 students from the School of Community Health Sciences at Njala University, Kowama Campus, Bo.

Because of the size of the targeted population, sampling was carried out to select a representative fraction of the targeted Population. The survey employed stratified, purposeful and convenient sampling method. Stratified sampling was used to identify students selected as respondents to the ICT survey Questionnaire. This sampling method was selected so as to ensure equal representation in an event where one or more strata in the population had a low incidence relative to the other strata. Purposeful sampling was used to acquire the appropriate number of student's representative in the survey. Convenient sampling was used to identify the lecturers/staff that formed part of the survey. The reason for this was that the lecturers/staff were relatively few in number.

4.3 Data Collection Method

Primary data collection method was used to directly obtain information from the selected students and lecturers/staff. A digital self-administered Questionnaire was designed and used to administer the questionnaire to the selected sample size using KoBoCollect software on smartphones of the respondents and tablets provided by International Organization for Migration (IOM), for those who do not have smartphones. Majority of the questions in the Questionnaire are closed ended, whilst a few questions are open ended. Open ended questions were used to help supplement the information given in the closed ended questions and helped in obtaining more complete data. The questionnaires were administered to the students and lecturers/staff during their lunch break and took on average 45 minutes.

4.4 Reliability and Validity

A pre-test was undertaken in order to establish the reliability and validity of the survey instrument. Twenty people were selected for a pre-test of the questionnaire.

On the other hand, an online application tool (***"SurveyMonkey"***) was used to calculate the Confidence Level of 95% and a Margin of Error (Confidence Interval) of 5% from the targeted population. A sample size of 192 respondents were selected from the target population (3,240) of the 'Academy 2' Infection Prevention and Control (IPC) training Programme. additionally, a total of sixteen (16) Staff members were selected from the School of Community Health and Clinical Sciences, Njala University, Kowama Campus, Bo (See Table 1.0).

4.5 Research Instrument or Tool

The primary data collection instrument for the study was a digital survey questionnaire that was designed and uploaded into Android smartphones using 'KoBoCollect' application. 'KoBoCollect' was used because it is a free open-source data collection tool that allows survey data to be collected quickly and reliably on Android, iOS, and many other devices, online or offline, and in any language.

The questionnaire was structured into nine sections. Section A elicited demographic details such a department, gender, age, and academic level of the respondents. Section B examined the level of ICT user habits of respondents. Section C required the respondents to rate their perceived ICT access to computers. Section D required the respondents to rate ICT usage and ICT tools. Section E examined the level of sustainability and availability of ICT resources. Section F required the respondents to rate or assessed the significance of ICT in their institution. Section G required the respondents to rate the use of ICT at home and other places. Section H required the respondent to rate the use of ICT and activities not related to University work. Finally, Section I examined ICT as a key platform for learning and educational development. The reliability of the instrument was calculated using the Cronbach's alpha formula.

Descriptive statistics (frequencies, percentages etc.) was employed in the analysis of data using the Statistical Package for Social Sciences (SPSS) version 16.0 and 'KoBoCollect' mobile data collection tool.

5. PRESENTATION AND ANALYSIS

5.1 Presentation

All the completed digital questionnaires collected on all the mobile devices were first transferred to the KoBoCollect server (http://www.kobotoolbox.org/) and later downloaded, collated, check for completion, and then analysed using SPSS and Microsoft Excel 2016.

The data collected was mainly presented by the use of quantitative statistical methods. Data from the open-ended questions were analysed by indicating the magnitude of responses viz-a-viz the total number of respondents to a particular option in a question. The responses from the structured questions were computed into frequency counts, percentages and charts. All the responses were summarized and tabulated for easy presentation, analysis and interpretation.

5.1.1 Distribution of respondents according to Gender, Age, Status and Course Type

The Personal characteristics such as age, gender, educational qualification, and attitude towards ICT of the respondents (Staff and students) will to some extent influence the adoption and integration of the technology (Schiller, 2003)

Chart 5.1.1.1 clearly shows that a vast majority of the Staff respondents are in the age category of 35-44 years, accounting for about 69%. On the other hand, the greater part of the Students respondent are in the age category of 25-34 years, accounting for 59% (Chart 5.1.1.2)

Additionally, Table 2.0 below clearly shows that more than half of the respondents are in the age category of 25-34 (56.3%), and are also females (59.1%). Majority of the participants in the survey are pursuing Diploma courses at the Njala University.

5.2 Analysis

The analysis and findings of ICT usage/habits at Njala University with regards to ICT availability, accessibility, sustainability, significance, usage, knowledge and competencies are summarized below:

5.2.1 Availability of ICT Resources

The current status of the available ICT resources in the University is summarized in Chart 5.2.1.1 below. It clearly depicts that most of the ICT resources are unavailable, except for Internet/E-mail Services (48%), Department Computer Laboratory (42%), Proprietary Software Printing and photocopying services (39%) that are fairly available.

The current commitment of resources for ICT (Chart 5.2.2.1) in the University according to respondents in the survey, is far too small accounting for 77%. However, a small percentage of respondents (18%) agreed that the current commitment of resources for ICT is far too much.

5.2.2 Levels of ICT Competencies

In Chart 5.2.3.1 above, the 'Levels of ICT Competencies for both Students and University Staff' shows that the overall competencies in the use of ICT Tools are below average, accounting for 41% of respondents who are able to browse the internet on a regular basis. The above chart noticeably shows that the levels of ICT competencies for both Students and Staff is a bit low.

5.2.3 ICT Accessibility

This section explains students' access to ICT infrastructures such as the computer laboratory, ICT Centre, internet café, university or faculty library and accessing computer at home during the course of their studies in the University.

Chart 5.2.4.1 clearly shows that both staff and students have very little access to ICT facilities in the University. More than half of the respondents (63%) have almost never had access to the Computer Laboratory; and about the same percentage (63%) agreed that they sometimes use the University's internet facility. On the other hand, nearly half (47%) of the respondents sometimes have access to ICT facilities (mainly internet) at home; and about half (54%) sometimes have access to ICT facilities in the University Library.

Theaccessibility to Computers (Chart 5.2.4.1) in the University Library, at home/hostels, ICT Centres and Computer Lab are slightly low. On the whole, 54% and 47% responded that they sometimes have access to Computers in the University Library and at home/hostels respectively. On the other hand, almost an equal number of respondents (45%) said they sometimes used computers in the ICT Centre, while some said they have almost never used the computers in the ICT Centre.

5.2.4 Limitations in the use of ICT Tools

Chart 4.2.5.1 shows that the use of ICT tools is a huge problem in the University as 84% of the respondents agreed that the use of the technology itself is a problem. On the other hand, 58% of the respondents said there are no available ICT tools for teaching and learning purposes. Additionally, 60% of the students responded to having inadequate access to online resources. Nearly half of the respondents (48%) agreed that the ICT Department does not get the requisite support that is required for the department.

5.2.5 Use of ICT Tools by Staff/Students for Academic Work

It is evidently clear that the use of ICT tools for academic work among Staff is very high (87%) when compared to Students (64%). Only a small percentage of staff (13%) agreed that they do not use ICT tools for academic work, while 35% of students said they do not use ICT tools for academic work.

The above findings are in sharp contrast to the findings in Chart 5.2.3.1 and Chart 5.2.6.2. The analysis in Chart 5.2.6.2 gives a detail synopsis of the use of ICT tools by Students and obviously shows that a vast majority of the students are not using ICT tools for their academic work.

5.2.6 Regular use of ICT Devices

This section describes the regular use of ICT devices by Staff and Students for teaching and learning purposes. Chart 5.2.7.1 clearly shows that smartphones and tablets are regularly used for academic work, accounting for 59% and 25% respectively.

Chart 4.2.7.2 shows the regular use of ICT tools to perform various academic tasks. It shows that staff and students also frequently used ICT tools associated with smartphones to perform different academic tasks. Forty-one percent (41%) of the respondents in the survey agreed that sometimes they normally used other ICT tools such as - Internet, Network Virtual Drive, Intranet systems, e-mail, SMS and social media discussion tools like WhatsApp, Twitter and Facebook to accomplished tasks related to their academic work.

5.2.7 Significance of ICT

The survey also further probed into the significance of ICT in staff and students' academic work. Respondents were asked to rate the likely importance of ICT to their institution in the next five years. Chart 5.2.8.1 clearly indicates that most of the respondents do not consider ICT to be entirely Significant in their institution.

5.2.8 ICT Usage at Home and Other Places

Chart 5.2.9.1 shows 'ICT Usage at Home and Other Places' and clearly shows that a vast majority of participants (about 94%) in the survey agreed that there is a great likelihood that they will use ICT at home and other commercial places.

While the ownership of Smartphones among the respondents are high (72%), the reverse is true for the ownership of tablet PC/Notebook computer in which 83% said they don't have. The ownership of Laptop and Desktop Computers are also low as 65% responded to not having it and thus do not use it at home.

With respect to access to internet, over half of the respondents (65%) said they have access to internet at home or in other places such as internet café.

Additionally, slightly over half of the respondents (59%) said they are willing to pay 60% of the normal cost charged at other facilities, if the facilities are made available on the University Campus.

5.2.9 ICT Sustainability

In the sustainability of ICT in the University, respondents were asked to rate the sustainability of some ICT infrastructure in their institution in the next five years. The overall responses to sustainability of ICT in the University is in the negative direction, as most of the respondents thinks that on average it cannot be sustained (Chart 5.2.10.1).

6.DISCUSSION OF FINDINGS

6.1. Introduction

The main purpose of this survey was to find out whether the provision of ICT infrastructure at the Njala University was adequate enough to meet the ICT needs of the University; and to ascertain whether the investment or adoption or improvement in "ICT-designed learning environment" will create the desired impact in the transfer of knowledge to both learners and tutors at the Njala University.

Discussion of the findings can be subsumed under the following categories:

6.1.1 Availability of ICT Resources

The findings from the survey as shown in Chart 5.2.1.1 revealed that ICT resources for teaching and learning are not adequately available. The available ICT resources are Internet/E-mail Services (48%), Department Computer Laboratory (42%), Proprietary Software and Printing and photocopying services (39%).
The findings of this survey are in tandem with the study of Leach (2008) and Nwana et al (2017) which underscores the fact that required ICT resources for effective ICT implementation in educational institutions are normally not adequately available. The result also agrees with the findings of Ololube (2006) and Pelgrum (2012) whose research findings concluded that there is poor ICT resource integration and usage in most educational institutions in developing countries.

6.1.2 Limitations in the use of ICT

The overall limitations of Integrating and leveraging on ICT at the Njala University is the technology itself. About 84% of the respondents (Chart 4.2.5.1) agreed that they have limitations in the use of ICT tools and technologies that are used to facilitate learning and to also broadens access to quality educational services for learners.
Despite all the hype about the use of ICT tools in the teaching and learning environment, it is important to note that the use of ICT tools are not the only panaceas for an effective teaching and learning experience. This simply means that the mere presence of ICT technology in the classroom will not insure more interest or cooperation in the pedagogical experience (Dwight L. Burton, et al, 2003).

6.1.3 Accessibility of ICT

Most educational institutions in Africa are faced with a lot of challenges that affect the effective integration of ICT in the teaching and learning situation. Notable among these challenges are limited infrastructures and the subsequent accessibility of the ICT resources to the learners (Singh, 1993).

The above also confirms the survey findings as about half of the respondents in the ICT survey agreed that they have access to computers in the University Library (54%) and at home/hostels (47%). However, the access to internet is high (63%) and this may be closely linked to the provision of free WiFi internet services on all the Njala University campuses. The free WiFi internet service is currently being sponsored by the World Bank Fibre Optic Project.

6.1.4 ICT Usage

ICT Usage was subdivided into the following: Use of ICT Tools by Staff/Students for Academic Work, ICT Usage at Home and Other Places and the regular use of ICT devices. Findings from the surveys shows that use of ICT tools for academic work among Staff is very high (87%), while among the Students, it is slightly above average

(64%). This may be closely due to the fact that most staff have personal ICT hardware such a Laptop Computers, Desktops, tablets, internet modem etc.

Even though the ownership of the hardware is low, a very high proportion (94%) agreed that there is a likelihood that they will use ICT at home and other commercial places if it is made available to them. The ownership of Smartphones among the respondents are high (72%), but it is mainly use for accessing social media networks like Facebook, WhatsApp, Twitter etc. Additionally, in a study conducted by Hisham et al (2006), it was clearly showed that students' sense of IT efficacy significantly affected their usage of such technology. The study finally concluded that students' sense of IT efficacy had a substantial indirect effect on their usage and satisfaction.

6.1.5 ICT Knowledge and Competency

The ICT Knowledge and Competency specifically looked into the following: use of ICT Applications, word processing software, file navigation, internet browsing, emailing, and use of presentation tools. Results from the survey clearly shows that the overall competencies in the use of ICT tools are below average, as 41% of the respondents were able to browse the internet. The overall levels of ICT competencies were fairly low, even though it contradicts the findings in Chart 5.2.3.1.

Based on the result from the survey so far, it is imperative that the University realign its ICT usage and policy so that it will move along with the technological changes, the world is currently experiencing. Voogt and Pelgrum (2005), maintained that a suitable curriculum needs to be developed in order to help students develop competencies that will help them survive in the current educational climate. Research have also shown that the absence of efficient and appropriate ICT development policies and tools in most African countries has widened the information gap between the developed and the less developed countries (UNDP report (2001); Kozma, R. et al (2004)).

6.1.6 Electronic Learning (E-Learning) Platform

Chart 5.2.8.1 clearly indicates the unavailability of an E-Learning platform. However, the survey also further probe into the significance of E-Learning platform to the respondents, 35% said it in not significant, while the others said it has a Low (21%), Moderate (22%), High (11%) and very High (11%) significance. The results of the survey also indicate that while some technologies, such as mobile phones, are widely used by staff and students, the use of E-Learning platform is considerably lagging behind.

The use of ICT technology to facilitate learning is widely accepted in almost all educational institutions. However, the greatest problem for most developing countries including Sierra Leone is still largely on getting the infrastructure and creating the e-learning content. These educational institutions also mainly depend on governmental support to get the infrastructure and determine policies (Lubis, 2009).

7. CONCLUSION

It is important to note that the use of Information and Communication Technology in educational institutions is becoming the major role in innovation and creativity. However, in developing countries like Sierra Leone and specifically Njala University needs ICT greatly in other to catch up with other universities. The research underscores the fact that required ICT resources for effective ICT implementation in educational institutions are normally not adequately available. The result also agrees with the findings of Ololube (2006) and Pelgrum (2012) whose research findings concluded that there is poor ICT resource integration and usage in most educational institutions in developing countries.

Despite all the hype about the use of ICT tools in the teaching and learning environment, it is important to note that the use of ICT tools are not the only panaceas for an effective teaching and learning experience. Additionally, in a study conducted by Hisham et al (2006), it was clearly exposed that students' sense of IT efficiency significantly affected their practise of such technology. The study finally concluded that students' sense of IT efficacy had a significant unintended effect on their usage and satisfaction.

8. CHALLENGES AND RECOMMENDATIONS

One of the main objectives of the National ICT Policy in Sierra Leone (2009), is to improve the educational system through e-learning. The establishment and development of an e-learning platform is crucial in ameliorating the challenges faced by our current teaching and learning methodology in the University.

The establishment and integration of an ICT-enabled pedagogical tools and infrastructure into the teaching and learning situation is a complex process that may encounter a number of difficulties or challenges (Schoepp, 2005). Findings from the ICT survey clearly showed a web of challenges that has affected effective and successful integration of ICT into the teaching and learning process. The following are the main challenges hampering ICT integration and usage at the Njala University. They are as follows:

8.1.1 Lack of ICT Competencies;

One of the main hindrances in the use of ICT at the University is the lack of knowledge and skills of some staff and students in the use of ICT Tools. This is not only peculiar to the Njala University alone, but also common in higher educational institutions in the country, and most other developing countries. The general lack of knowledge regarding the use of ICT, and lack of skill on ICT tools and software, have also impeded the use of ICT tools in the teaching and learning environments.

There is therefore the need for rigorous training in the use of hardware and software, for the successful implementation of any ICT in the University.

8.1.2 Limited Accessibility to ICT Tools;

Limited accessibility to ICT tools is one of the greatest impediments to technology integration in educational institutions (Albirini, 2006). Limited accessibility to Computers, printers and regular internet network connectivity both at the University campuses or at home are some of the regular challenges faced by both staff and students at the Njala University (Chart 4.2.4.1).

Thein accessibility of ICT resources is not actually due to the non-availability of the hardware andsoftware or other ICT materials, but is mainly due to inadequate quantity of available ICT resources. As a result of this, the limited ICT resources has to be most times shared by staff and students.

8.1.3 Inadequate Allocation of Budget to the ICT Department;

There is a significant gap or challenges in adequately financing the development of ICT infrastructure in the University. With limited and competing financial resources, and pressure to minimize administrative and management costs by the University authorities, it is often very difficult for the ICT Department to get adequate funds that can be used to properly plan and invest in ICT infrastructure at the University.

8.1.4 Lack of Technical Support;

Lack of technical support is one of the overarching challenges that normally hampers progressive development of ICT infrastructure in most educational institutions in developing countries. Njala University has at least one technical staff at the two campuses in Bo and Freetown and about 3-4 staff at the Mokonde main campus; however, there is a need for an increase in the levels of technical expertise of the IT Staff at the University. There is therefore the need for advance technical training of the IT staff so as to meet the daily challenges of running a huge educational IT infrastructure.

8.1.5 Inadequate ICT Infrastructure

The available ICT Infrastructure at the different campuses are not adequate enough to support the development of a proper functioning Electronic Learning (E-Learning) platform in the University. Additionally, the effective use of

ICT does not only depend on the availability of equipment, like computers and other accessories, but also on regular proper maintenance which is also lacking at the University.

8.1.6 Sustainability

One of the main challenges in the establishment of ICT infrastructure that is normally overlooked is the issue of sustainability plans. Cost of maintenance of equipment and applications; and cost of replacement of equipment are some of the critical challenges that affect sustainability. Computers and other hardware depreciate as they aged and must be replaced regularly.

Development partners are normally happy to provide support for the initial capital costs of a project, but generally shy away from recurrent costs, unless it is in the very short term.

8.2 Recommendations

It is strongly recommended that Central Government through it donor partners; and the Ministry of Education and the Ministry of Information and Communications plays an active role in the development and implementation of ICT infrastructure at the Njala University.

The University authorities should also allocate an appreciable budget from the University Fund for the improvement and maintenance of ICT infrastructure in the University. Such budget could be factored into the University fees and used mainly for the sustenance of the ICT infrastructure.

i. The successful implement of ICT at the Njala University requires a comprehensive training of both staff and students in ICT skills. The training should be mainly geared towards building and enhancing the capacity of staff and students in the use of ICT tools.

ii. The ICT Department together with University authorities should strategically plan for, set priorities and targets and effectively deploy ICTs tools and infrastructure that are scalable, cost effective and sustainable. This can also be achieved through cooperation and collaboration with private sector stakeholders.

iii. There is a need for investment in E-services as the survey clearly shows that the ownership of smartphones is high among staff and students, accounting for about 72%. The University IT Department should explore the huge potential smartphone E-services are providing for developing countries. For instance, payment of fees, SMS-based admissions results, grades, and other vital information from the University can be transmitted using the smartphone E-services.

iv. Even though internet access and connectivity have improved a lot on the University campuses as a result of the World Bank funded Fibre Optic project, it is critically important to investment in ICT infrastructure that is carefully designed to cater for low-bandwidth and delay tolerance or networking constraints.

v. Investment in any ICT infrastructure should be accomplished by the development of a detailed sustainability plan that is realistic, scalable and achievable.

Tables

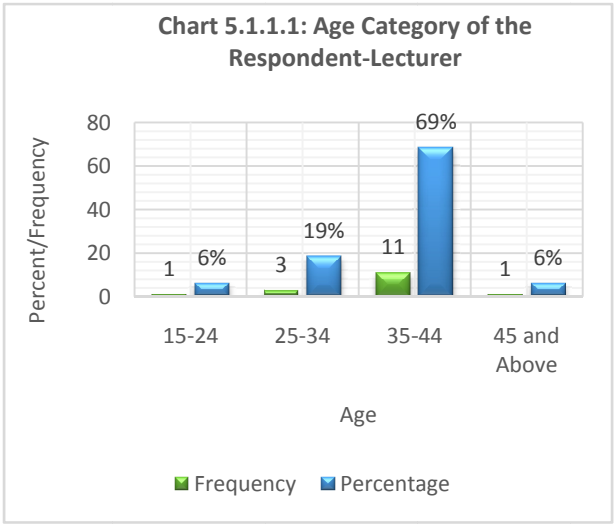
Table 1.0: Sample Selection and Categories of Respondents

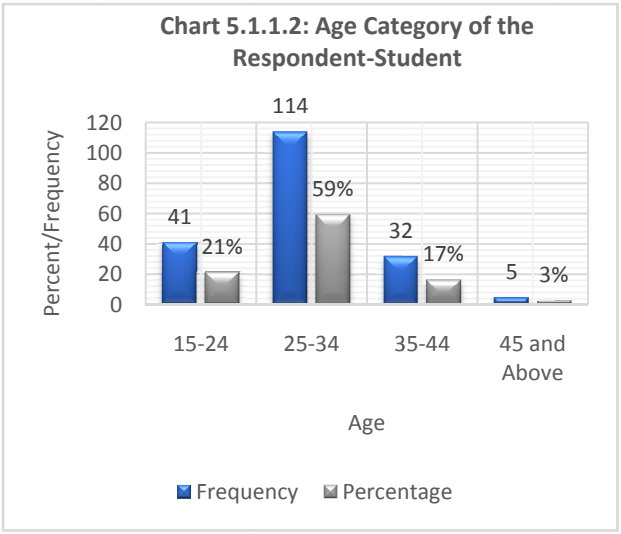
Institution	Categories	Targeted Population	Sample Size	Percentage
Njala University	Student	3,240	192	92.3%
	Staff	-	16	7.7%
Total		**3,240**	**208**	**100.0%**

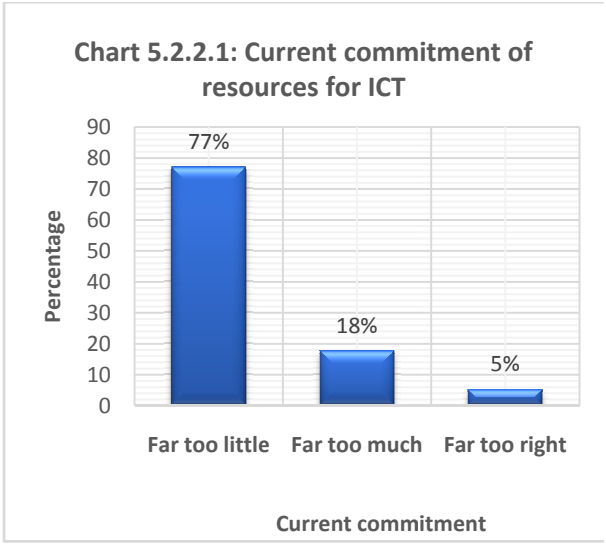
Table 2.0: Distribution of respondents according to Gender, Age and Course Type

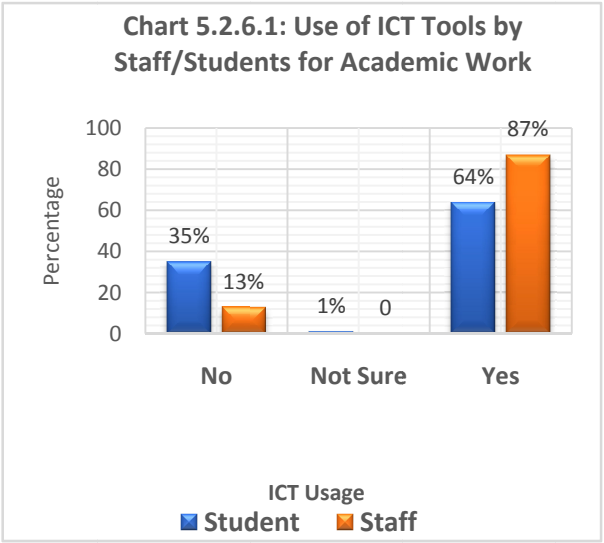
Attributes	Category	Count	Percentage
Gender	Male	85	40.9
	Female	123	59.1
	Total	**208**	**100**
Age	15-24	42	20.1
	25-34	117	56.3
	35-44	43	20.7
	45 and Above	6	2.9
	Total	**208**	**100.0**
Status			
	Lecturer/Staff	16	7.7
	Students	192	92.3
	Total	**208**	**100.0**
Course Type	Certificate	12	6.2
	Diploma	152	79.2
	Degree	28	14.6
	Total	**192**	**100.0**

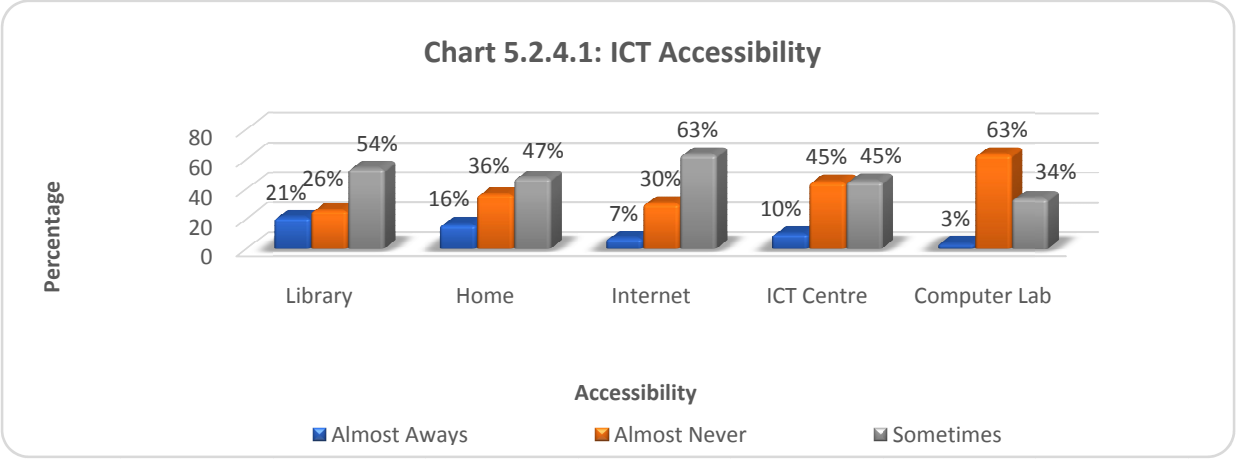
Figures

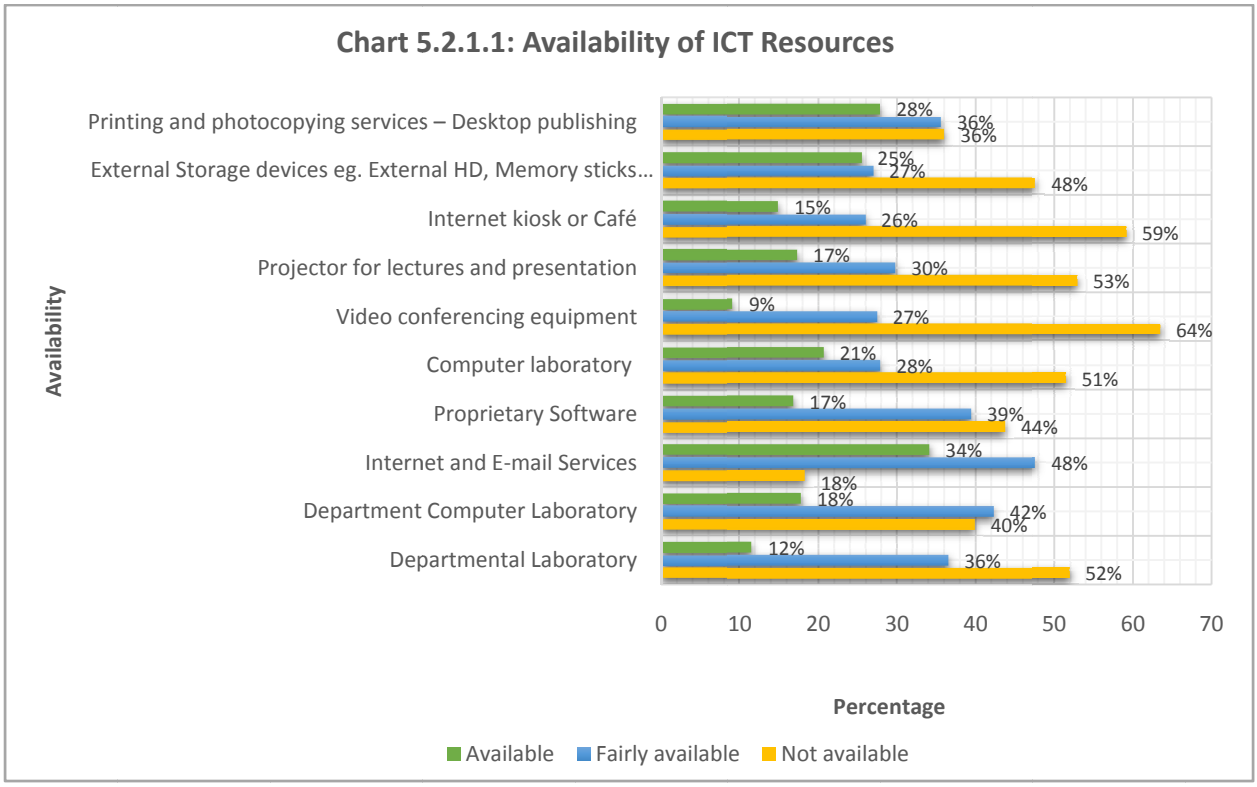


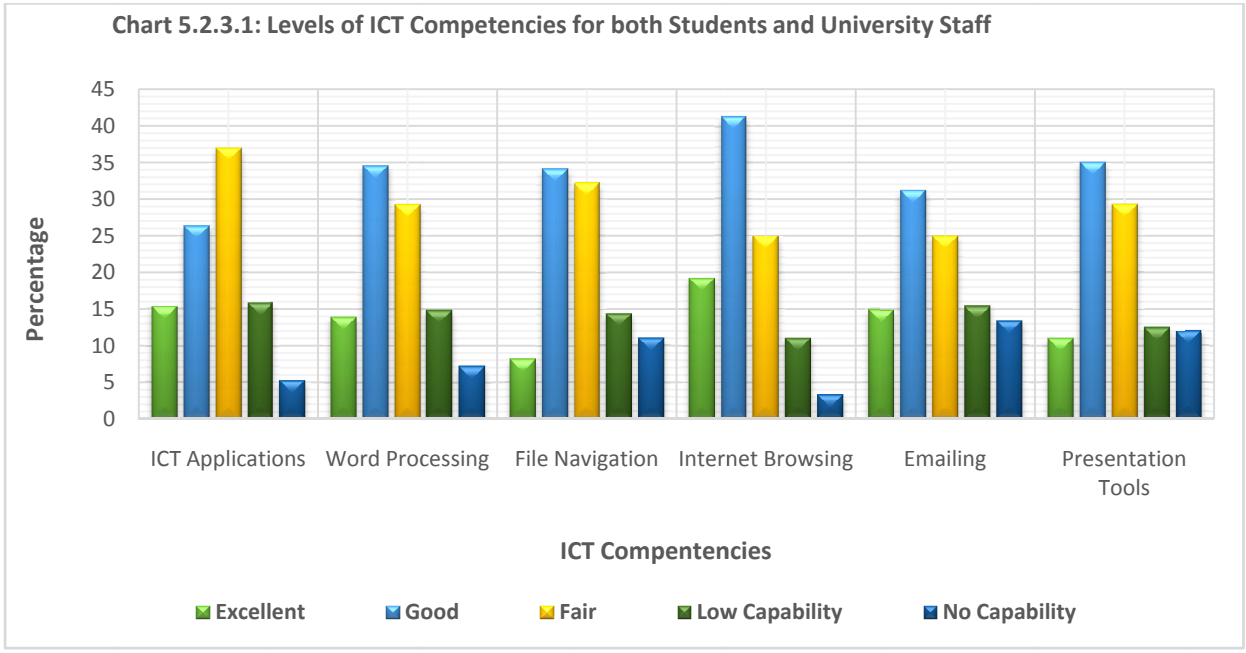


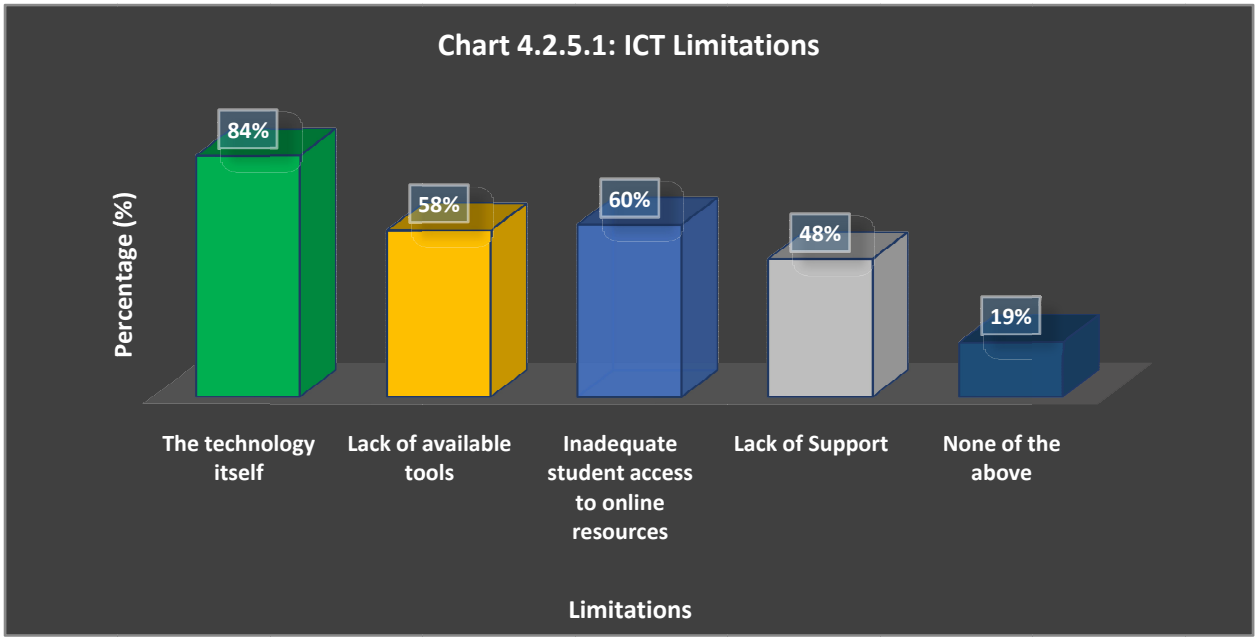


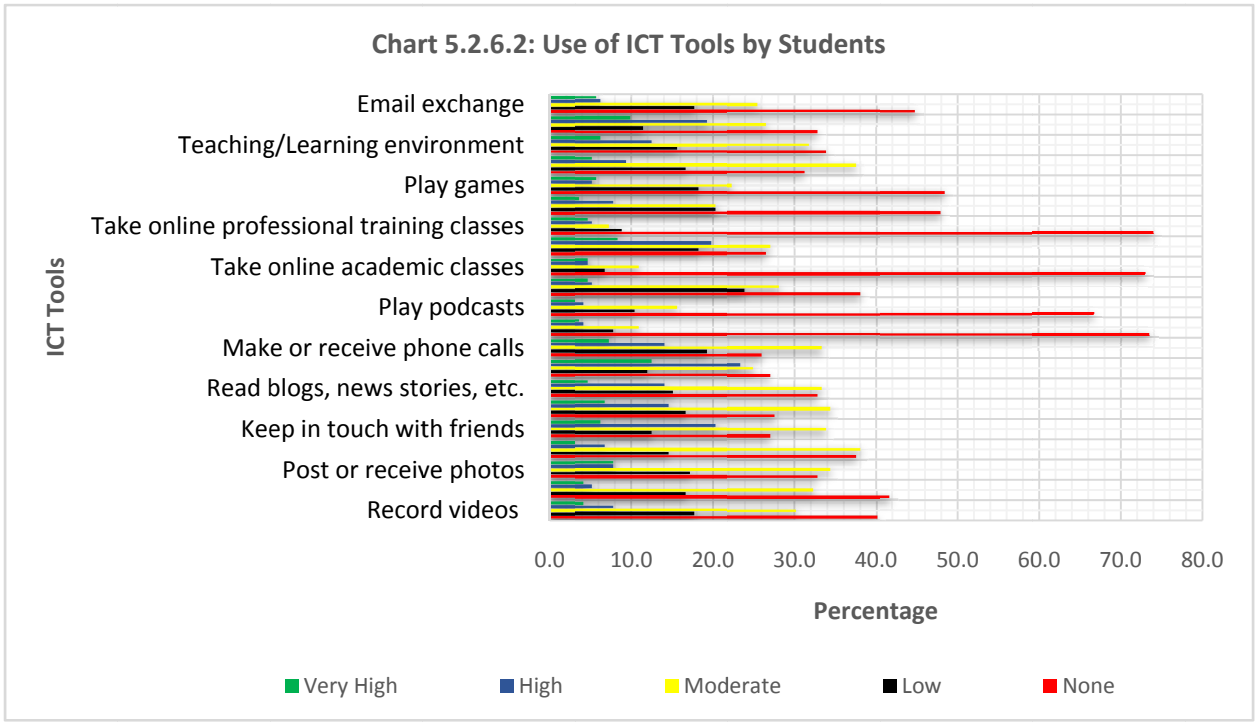


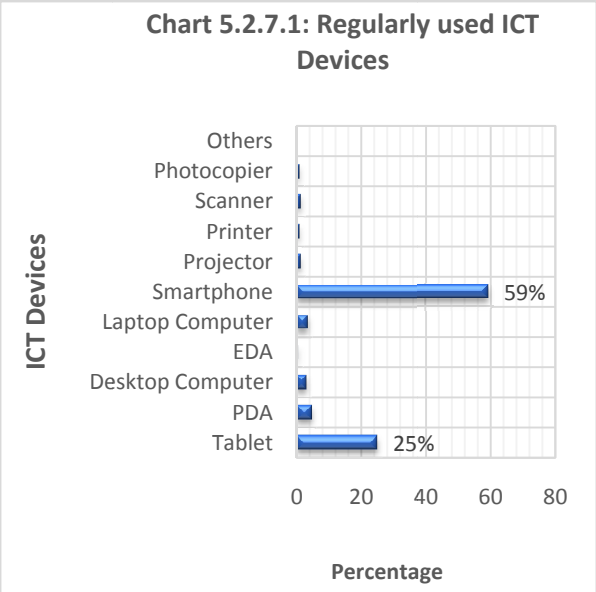


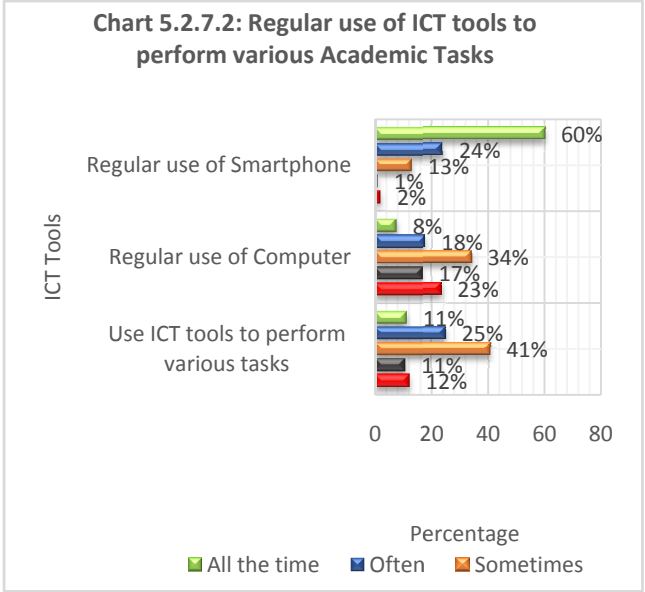


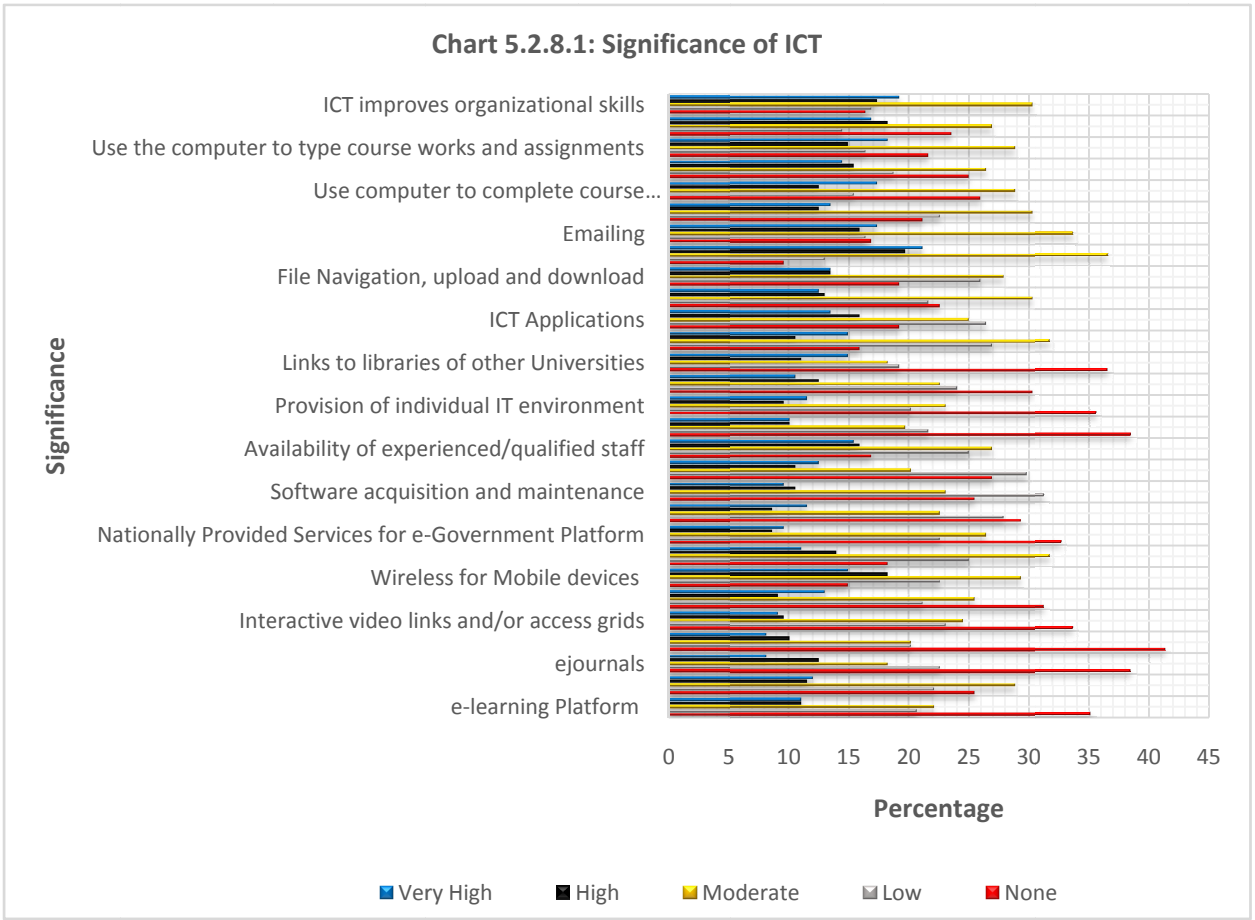


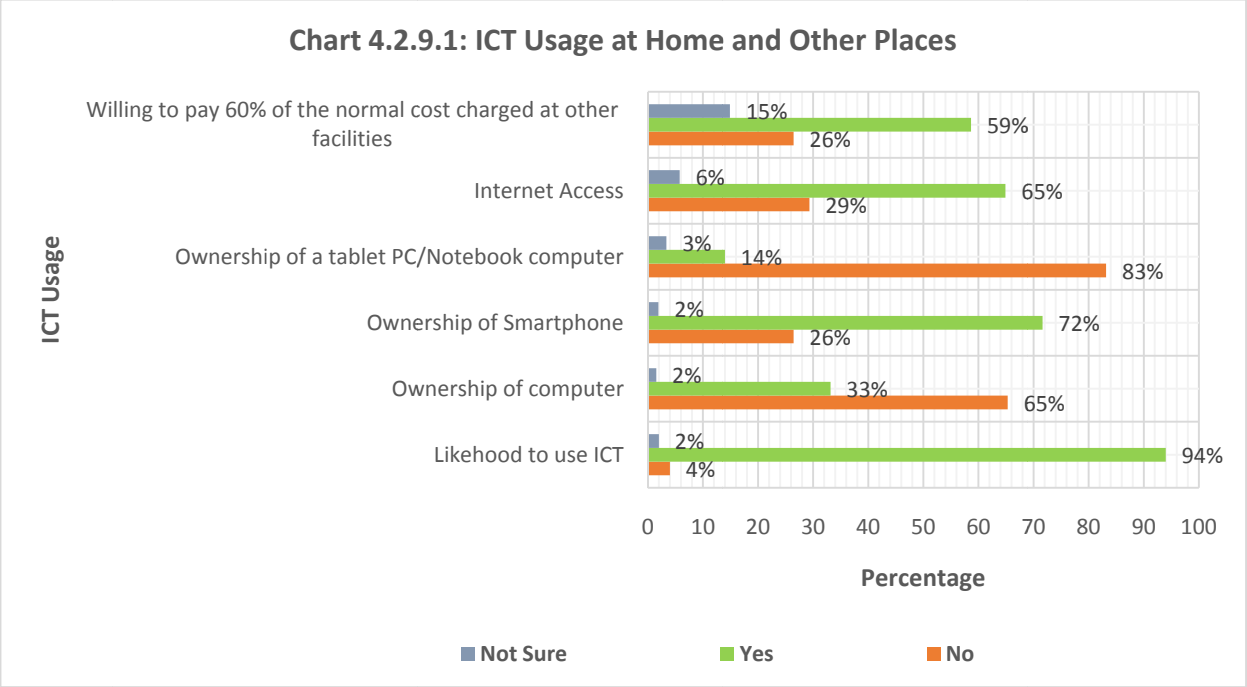


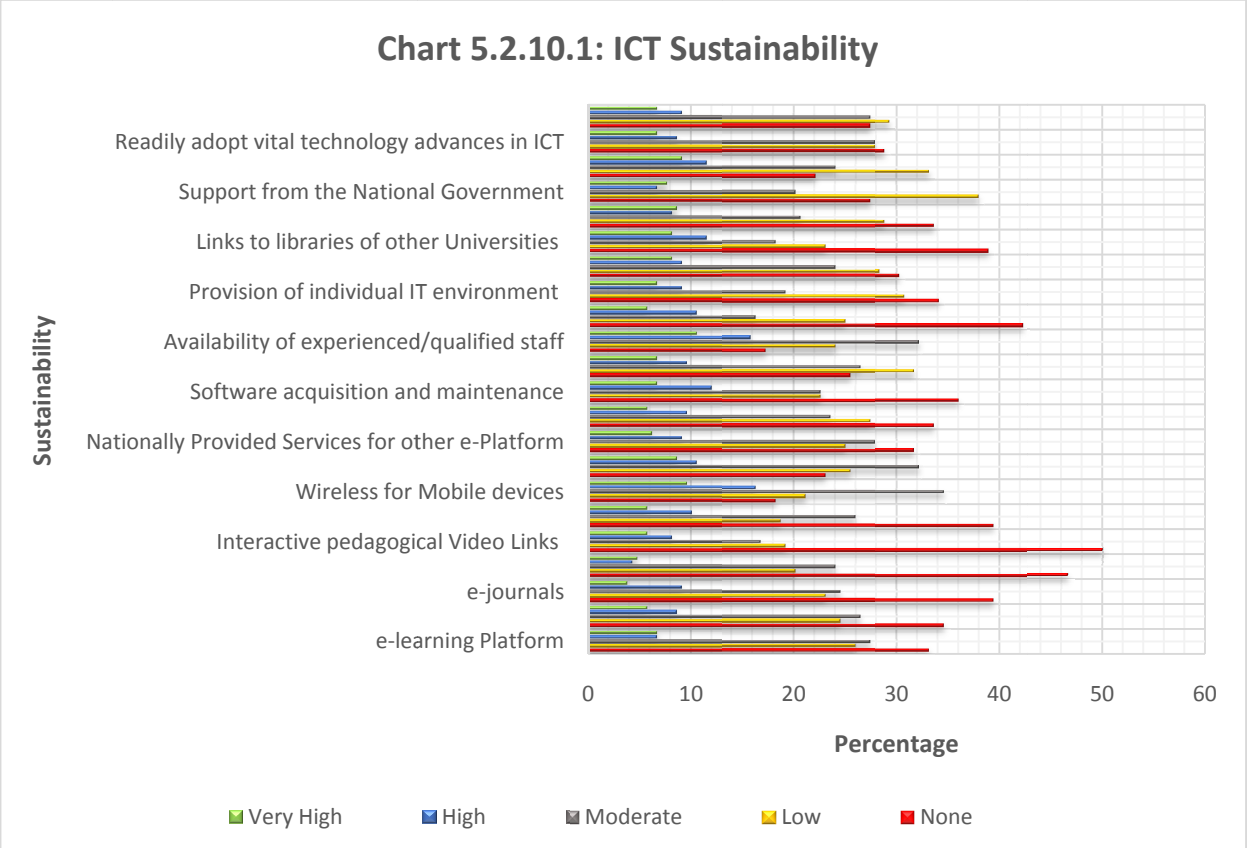












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