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DEMOGRAPHIC FACTORS AFFECTING ICT UTILISATION BY UNDERGRADUATE STUDENTS IN SOME SELECTED UNIVERSITIES IN NIGERIA

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ABSTRACT: *This study investigated the demographic factors affecting utilization of Information and Communication Technologies by undergraduate students in Nigeria. The factors examined include gender, age, religion, marital status and type of university. The study adopted a survey design approach and the questionnaire was administered on 1000 students across various Nigerian universities. 500 students were from two federal universities while 500 were from two state universities. Data were analysed using descriptive (frequency distribution) and inferential (Chi-square, PPMC and t-test analysis) statistical tool. Findings showed that the male gender utilizes ICTs more than the female gender, students below age 20 use ICT more than those between ages 20 and 30 years, single students utilize ICT more than the married and traditional worshippers use ICT more than Muslims while the Christian use of ICT is the lowest. The groups that use ICT more consequently experience greater benefits in terms of productivity and profit.*

KEYWORDS: Demographic, ICT, Utilisation, Undergraduate Students, Nigerian Universities.

INTRODUCTION

The role of Information and Communication Technology is highly significant in the development of the whole world. In spite of the tremendous development achieved in the ICT sector, there are some factors affecting ICT utilisation in Nigerian Universities. Several research studies have been carried out on the factors that affect the ICT utilisation in educational institutions globally. Taylor, Dekkers and Marshall (2003) highlighted some factors that affect the use of Internet at home as geographical location, gender, education level, marital status, family income, employment status and location at home. Igbaria and Parasuramen (1991),Wiberly and Jones, (1994), Tiamiyu, Ajayi, and Olanlokun (2001), Corbett and Williams (2002) in their studies in examining factors that affect ICT, were able to find out that gender, age, level of education, academic discipline, skill and income are the factors that affect the utilisation of ICT. Okiki and Asiru (2011) were of the opinion that the factors that influence the use of Electronic information sources among students varied according to the program of their study and recognized the need for the students to carry out researches in order to excel academically.

However, demographic variables such as gender, age, level of education, and length of library experience were not significantly related to their attitude towards computers. Zhu and He (2002) as quoted by Adeoye (2010) surveyed 1000 adult residents to examine the adopting use and social impact of the Internet in Hong Kong and found that Internet adoption was affected by a full range of factors such as one's personal characteristics, socio-economic status, social cultural settings and perceived compatibility of the Internet.

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Statement of the problem

Universities all over the world make available a wide variety of Information and Communication Technologies for use to the undergraduates, postgraduates, researchers and staff in their respective institutions. Lecturers and students in universities use ICT facilities in order to derive positive benefits from using them. In Nigerian universities the level of ICT awareness is high which does not necessarily leads to the utilisation of the facilities. It is on this basis that the researchers decided to investigate if demographic and social factors are responsible for the difference in the utilisation of ICT facilities by the undergraduate students in the selected universities.

Objective of the Study

The objectives of the study are as follows:

- to examine if there is any difference in the utilisation of ICT between male and female.
- to examine if there is any difference in the utilisation of ICT facilities among students of different age groups
- to examine if there is any difference in the utilisation of ICT facilities between married and unmarried students
- to examine if there any difference in the utilisation of ICT facilities among students of different religions
- to examine if there any difference in the utilisation of ICT between students from federal and state universities

Research Questions

The study attempted to answer the following research questions

i. is there any difference in the utilisation of ICT between male and female students?
ii. is there any difference in the utilisation of ICT facilities among students of different age groups?
iii. is there any difference in the utilisation of ICT facilities between married and unmarried students?
iv. is there any difference in the utilisation of ICT facilities among students of different religions?
v. is there any difference in the utilisation of ICT between students from federal and state universities?

Hypotheses

$H0_1$: There is no significant difference in the utilisation of ICT between male and female students.

$H0_2$: There is no significant difference in the utilisation of ICT facilities between students' of different age groups.

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HO_3: There is no significant difference in the utilisation of ICT facilities between married and unmarried students.

HO_4: There is no significant difference in the utilisation of ICT among students' of different religions.

$H0_5$: There is no significant difference in the utilisation of ICT between students from federal and state universities.

LITERATURE REVIEW

A study carried out by Talja and Maula (2003) investigated the use and non-use of e-journal and databases in nursing sciences, literature, cultural science, history and ecological environmental sciences and the relationship to scholars search method and concluded that search methods can be affected by different factors across disciplines which include density of the universe of topically relevant documents, amount of topically relevant documents available in the field, degree of scatter, primary relevant criteria and book versus article orientation. Brzycki and Dudt (2005) also identified some barriers to technology adoption as time, support models, infrastructure and culture that persist and even reappear with new technology. Ojedokun (2001) stated that there were a number of obstacles militating against ICT in universities in Nigeria. Although digital libraries are very important for speedy delivery of information, there is the great challenge on how to improve upon the information infrastructure in Nigeria and Africa as a whole. Alasa and Kalechukwu (1999) identified the factors that militate against the full presence and utilisation of ICT facilities in university libraries in Nigeria as poor and inadequate telecommunication facilities; poor level of computer literacy even within the academic community; poor level of awareness of Internet facilities among policy makers, government officials and ruling class in general; and minimum involvement of academic institutions in network building in Africa.

However, Ramzan (2004) has described the situation in Pakistan and other developing countries and observed that librarians in Pakistan were not prepared to embrace the changes forced on them by new technologies and that most of them were uncertain about ICT applications in their organizations, because they had little knowledge of ICT. Igbaria and Parasuraman in Popoola (2002) argued that fear and negative attitudes have slowed the progress of ICT implementation. James (2002) discovered that reference librarians with digital reference experience had more positive attitudes than those who had no experience. Adekunle, Omoba and Tella (2007) showed that librarians had a positive attitude toward ICT, with large majorities agreeing to its usefulness and that ICT training and knowledge possessed by librarian can influence their attitude toward ICT. Patil (2009) in her findings indicated that slow speed downloading problems and lack of training are the major problems faced while using the Internet. Mohammed (2000) in her study revealed that there is more competition for bandwidth which contributes to frustratingly slow connection speeds and finding needed information is rendered more difficult because of the proliferation of information. The availability of ICT facilities and the challenges of well trained personnel as tutors to the students is still one of the factors affecting the utilisation of ICT in our universities.

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Gender and Utilisation of ICT

There are different factors affecting ICT utilisation in Nigerian universities and gender is one of the factors that influence the use of ICT by the undergraduate students in Nigerian universities. Researchers have carried out different studies on how gender affects ICT utilisation. Schumacher-Khadijevich and Morahan-Martin (2001) and Dorup (2004) reported that females were found to be more negative in their attitudes than males towards ICT.

Hunley, Evans, Delgado–Hachey, Krise, Rich, and Schell (2005) carried out a research on adolescent's use of computer and academic achievement in USA observed that girls spent more time than boys using telephone and doing homework but there was no significant difference between gender and the total time spent on the computer. Colley and Comber (2003) were of the opinion that there was no gender difference in frequency of use for e-mail, the Internet and CD-ROM in their study on gender difference in computer use and attitudes among five secondary schools in Midlands of the United Kingdom.

Tchombe (2008) in her study on Gender and Psycho-pedagogical Implications for Cognitive Growth through Access to Information and Communication Technologies was of the opinion that ICT, especially in developing African countries, is an area quite sensitive to gender where women and girls are at particular risk of exclusion from potential opportunities for various reasons. She further stated that computer is viewed as enhancing technological capabilities and empowering the learner and that with the utilisation of ICT and the positive effective role in school through students' communication via e-mail and use of Web-based resources, that there is growing interest in how ICT might best be used to eradicate the erroneous belief about female inability to manage the computer or technological oriented learning. The above assertion was confirmed when the Secretary General of the United Nations at the World Summit on the Information Society in Geneva in December 2003 stated that "that was a gender divide, with women and girls enjoying less access to information technology than men and boys". Ford, Miller and Moss (2001) discovered that females experience more difficulty while looking for information on Internet and those females feel competent and comfortable while using the Internet, and that they used the Internet less than their male counterparts.

Observations during the research proved that there was a gender gap on the use of the Internet. That gender is a major predictor of the utilisation of Internet facilities and attitudes. They have also discovered that girls have more interest in ICT than boys, based on the rate at which girls registered in the computer laboratory and the cybercafé. Munyna (2005) stated that there were some factors that serve as barriers to women's utilisation of ICT such as technological infrastructure, socio-economic and cultural construct. Gender plays a crucial role in limiting the female participation on equal terms with their male counterparts. Other factors that are militating against females' full involvement in the maximum utilisation of ICT are poverty, insufficient literacy, and lack of training and insufficient time due to other activities that are carried out by women in their immediate environment. ROCARE, Cameroon (2005) indicated that girls become more focused and concentrated than boys once they are effectively introduced to the use of ICT.

In a study carried out by Selwyn (2008) it was reported that gender and course affected use of the Internet. Rideout (2002) discovered that geography, gender, age and disability are factors that are related to the digital divide in Canada. Reddick, Boucher and Groseilliers

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(2000) reported that gender, location and age affected levels of use of ICT. Furthermore, Hunley, Evans, Delgado – Hachey, Krise, Rich, and Schell (2005) also reported that males were more skilled than females at navigating the web in their study on Internet use among adolescents in the United States of America. Jackson, Ervin, Gardner and Schmitt (2001) also reported that the introduction of Internet and electronic mail have no dramatic impact on female attitudes to the use of computer despite its usefulness as a means of connecting to the old friends through e-mail or face book and the act of getting different information on the Internet.

It is worthy to note that Malaney (2005) in her study on the utilisation of Internet by undergraduates stated that females and males spent almost the same time on the Internet but the information source by females were quite different from males. The above opinion was supported by Dumont and Dumont (1981) who questioned the opinion that claimed that women were less interested than men in the adoption and use of ICT. Women in this technological age equally need ICT like their male counterparts. Therefore, females should be introduced to the utilisation of ICT as and when due just like males so as to be able to fit into the society. Munyua (2005) believed that an attempt to achieve gender equality in ICT requires more than mainstreams gender concerns into the ICT. There should be serious commitment and political will. Gender divides need to be addressed whereby women will also benefit from ICT and to make ICT a central tool in women's empowerment and promotion of gender equality. It has been found that there was no significant difference in the attitudes of male and female administrators in secondary schools in Taiwan towards computer and computerization (Liu, 1989). Also, Igbaria and Para Suaraman (1991) in their study reported that there was no significant relationship between gender and attitudes towards micro-computers and that attitude was highly correlated with accessibility and frequency of use of ICT. White (1995) in his study on the use of the Internet by the faculty staff in a university reported that female members showed significantly higher use of electronic information than males.

Age and Utilisation of ICT

Age could be another factor that affects utilisation of ICT in Southwest Nigerian universities. Age is the length of time that a person or thing that lived or existed. Age has been found to correlate with the use of ICT facilities. It is a known fact that younger generations are brought up with computer, especially with the introduction of mobile phones. Several studies have been carried out on how age affects the utilisation of ICT in the education system. White (1995) carried out a study on internet use by a Faculty of Mass Communication and other related disciplines in USA and reported that about three quarters of the respondents used computer-mediated communication, and that younger faculty members showed higher use of electronic information than the general population. Laguna and Babcock (1997) discovered that there were significant age differences on computer task, as measured by older adults making fewer correct decisions than the younger adults. Rabnovictchs (1995), Avigdori (2000), Hammerschaig and Izhaki (1997) in their studies also confirmed that age is one of the factors that affect the use of ICT resources. Corbel and Willms (2002) were of the opinion that people who quickly adopt new technologies tend to be younger than those who are later or non-adopters of the new technologies. Comber, Coley, Hargreaves and Dorn (1997) in their study of age, computer experience and computer attitudes among teenagers found that there was positive attitude in younger group of ages eleven to twelve years than the older group of fifteen to sixteen years.

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In a study on Internet use among people aged sixteen (16) years and above in the United State of America, they postulated that people within 16 and 24 years were characterized as using the Internet at a high rate than the older ones (Hunley, Evans, Delgado-Hachey, Krise, Rich, and Schell, 2005). Similarly, Hoskins and Hoof (2005) in their study on some factors that affect the utilisation of learning and their influence on the achievements of second year undergraduates of psychology in a university in the United Kingdom reported that the number of hits, length of access, and use of the bulletin board was related to age, with older students using Web CT more than others. Chu (1994) also discovered a negative relationship between age and the use of e-mail. Colley and Camber (2003) also carried out a research on gender and age difference in computer use and attitudes among students of ages 11-12 and 15-16 in five secondary schools in Midlands of the United Kingdom and reported that the older girls of ages between 15-16 years used CD-ROM less than the younger ones of ages 11-12 years.

In the same vein, Kjefulff, Pillar, Mills and Lamgan (1992) in their study among nurses in medical school, reported that older nurses were more technology anxious than younger ones. Laerum (2001) discovered that age does not seem to make a difference in people's comfort levels with computer. He further stated that medical doctors showed no difference in usage of electronic resources in terms of sex and age.

Religion and Utilisation of ICT

Religion is a belief binding the spiritual nature of man to a supernatural being, as involving a feeling of dependence and responsibility, together with the feelings and practices which naturally flow from such a belief. The researcher is to discover if religion (belief of the undergraduates) influences the utilisation of ICT in selected Southwest Nigerian universities. In Nigeria, religion can be grouped into three major types namely Christianity, Islam and African Traditional Religion. Religion can affect the utilisation of ICT positively or negatively. Adetimirin (2008) in her study on factors affecting undergraduates' use of ICT in selected Nigerian universities discovered that the Muslim respondents who used ICT the least constituted the highest percentage of respondents among the nine groups derived from a combination of the three religions mentioned above. She also discovered that there were respondents who were Christians and were also found to use ICT less for academic tasks.

Marital Status and Utilisation of ICT

Marital status is one of the demographic factors that affect the use of ICT in some selected universities in Southwest Nigeria. Adetimirin (2008) found that majority of the respondents that used ICT most were found to be singles ranging from 54.8% to 76.3% in six of the seven universities. She also discovered across the universities that students that used ICT averagely were 19.9% among single undergraduates and to crown it all, ICT was used more for academic tasks by single undergraduates than the other groups. Taylor, Dekkers, and Marshall, (2003) indicated that the singles showed higher use of internet more than the married students.

This could be due to the fact that married students have other pressing issues to attend to such as domestic activities in form of caring for their children, husbands and other family members or relatives which may not give them enough time to use the facilities like their counterparts that are not married.

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Type of University and Utilisation of ICT

The type of university can also influence the utilisation of ICT by students (Adetimirin, 2008). In a situation where the facilities are not available within the school environment, it means the students would not have access to it. This implies that the institutions whether state or federal universities should make ICT facilities available for students' utilisation. Apart from the availability of the facilities, they must also be in good condition to encourage the students in using the available facilities. The librarians/ICT librarians who are to manage the ICT facilities must be friendly with the students who would be encouraged to use them. The facilities must also be properly maintained and repaired when faulty.

A conducive and good facility definitely supports educational enterprise. It has been discovered by researchers that clean air, good light, safe, quiet and comfortable learning environment are very important for academic achievement. The environment in which learning takes place can influence students' academic achievement positively or negatively. Therefore, every institutional management should ensure that the school and every other thing in the institution are conducive and appealing to the students.

Based on the discussion above, it has been revealed that there are many factors that affect utilisation of ICT by university students. Taylor, Dekkers, and Marshall (2003) are of the opinion that geographical location, gender, education level, marital status, family income and employment status are the factors that affect the usage of ICT while Brzycki and Dudt (2005) identified time, support, models, infrastructure and culture as obstacles against the utilisation of ICT. However, the researcher observed that despite the importance of ICT to educational development, Nigerian universities are yet to extensively adopt them for teaching and learning. The factors that affect the utilisation of ICT are enumerated above and it is the wish of the researcher that such factors as gender, age, ICT skills, economic factors, educational qualification, poor policy, poor information infrastructure, lack of fund, manpower, training and retraining could be looked into by the government and the management in order to have effective and full utilisation of ICT facilities as learning aids in Nigerian universities.

METHODOLOGY

The survey method of investigation was adopted for the study. The population of the study comprised of all the undergraduates students in the selected universities under study. The simple random sampling was used to select 250 library users in each of the four universities totalling 1,000 students. The main instrument of data collection was the questionnaire which was distributed to students using stratified random sampling technique. The researcher personally administered the questionnaire with the assistance of four research assistants in all the universities for effective coverage. Results of the findings were subjected to statistical analysis using descriptive (frequency distribution) and inferential (Chi-square, PPMC and t-test analysis) statistical tool. .

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RESULTS

HO_1: There is no significant difference in the utilisation of ICT between male and female students.

Table 1: t-test Summary of Difference in the Utilisation of ICT between Male and Female Students

Source of variation	N	Mean	SD	df	t_c	t_t	Result
Female	421	17.84	1.951	998	56.307	1.960	Significant
Male	579	12.17	1.227				

Significant at 0.05 alpha level

Table 1 above shows that t-cal (56.307) is greater than t-table (1.960). Therefore, the null hypothesis was rejected, which implies that there was significant difference in the utilisation of ICT between male and female students. Male students made use of ICT more than the female.

HO_2: There is no significant difference in the utilisation of ICT facilities and students of different age groups.

Table 2: t-test Summary of Difference in the Utilisation of ICT among Students of Different Age Groups

Source of Variation	N	Mean	SD	Df	t_c	t_t
20-30	653	11.61	1.318	998	28.412	1.96
Under 20	347	16.12	2.797			

Significant at 0.05 alpha level

Table 2 above shows that t-cal (28.412) is greater than t-table (1.96). Therefore, the null hypothesis was rejected which means that there was significant difference in the utilisation of facilities between students of different age groups.

HO_3: There is no significant difference in the utilisation of ICT facilities and married and unmarried students.

Table 3: **t-test Summary of Difference in Utilisation of ICT between Married and Unmarried Students**

Source of Variation	N	Mean	SD	Df	t_c	t_t	Result
Single	563	16.62	2.696	998	33.698	1.96	Significant
Married	437	11.89	1.302				

P>0.05

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Table 3 above revealed that t-cal (33.698) is greater than t-tab (1.96). Thus, the null hypothesis was rejected, which means that there was a significant difference in the utilisation of ICT between married and unmarried students.

HO4: There is no significant difference in the utilisation of ICT among students' of different religions.

Table 4: ANOVA of Difference in the Utilisation of ICT among Students of Different Religions.

Source of Variation	Source of Square	df	Mean Square	F-cal	F-tab	Result
Between Groups	5227.180	2	2613.590	512.347	2.99	Sign.
With in Groups	5085.904	998	5.101			
Total	10313.084	1000				

P> 0.05

The table 4 above revealed that f- calculated (512.347) is higher than f-table (2.99). Therefore, the null hypothesis was rejected, which means that there was significant difference in the utilisation of ICT among students of different religions.

Table 5: Scheffe Post-hoc Test Showing Difference in the Utilisation of ICT among Students of Different Religions

Source of Variation	Mean	Christianity	Islam	Traditional
Christianity	13.45			
Islam	19.26	*		
Tradition	20.00	*		

*Denotes pair of significant difference at 0.05 level.

The values in the table revealed that there was a significant difference in the utilisation of ICT among students of different religions

H05: There is no significant difference in utilisation of ICT between students from state and federal universities.

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Table 6: ANOVA of Difference in Utilisation of ICT between Students from state and federal Universities

Source	N	Mean	SD	Df	t_c	t_t	Result
State	500	17.07	2.512	998	39.992	1.960	Significant
Federal	500	12.03	1.271				

$P < 0.05$

The table 6 revealed that calculated t value (t_c) 39.992 is greater than the table value 1.960.Therefore, the null hypothesis stated was rejected, which means that there was a significant difference in the utilisation of ICT between students from Federal and State Universities.

Therefore, students from Federal universities made use of ICT facilities more than those from state universities in the selected Southwest Nigerian Universities.

DISCUSSION

The findings revealed that there was significant difference between utilization of ICT among male and female students. The male use the ICT facilities more than the female, indicated that the use of ICT among students in the four selected Southwest Nigerian university libraries was influenced by gender. This study corroborated with that of Majid (1999) who also found a similar result in studying faculty members that males tended to have better computing skills than females. This was contrary to the submission of Adetimirin (2008) that the use of ICT among undergraduates in Nigerian universities was not influenced by gender.

The findings indicated that there was significant difference in the utilisation of ICT facilities among students of different age groups. This result was corroborated by the study of Adetimirin (2008) that stated that younger age of less than 20 years of age use ICT facilities more than older people. Laguna and Babcock (1997) found that there were significant age differences on computer task as measured by older adults making fewer correct decisions and taking longer to make their decisions than younger adult. Therefore age seems to make a difference in people's comfort levels with computers. Furthermore, the finding also revealed that there was significant difference in the utilisation of ICT between married and unmarried students. Majority of the respondents were single students. This agreed with Adetimirin (2008) that most of the ICT users were single. However, the result was contrary to that of Laerum (2001) that medical doctors who have similar educational backgrounds showed no difference in the usage of electronic resources in terms of sex or age. Hoskins and Van Hoolf (2005) on second year undergraduate of psychology in a University in the UK discovered that older students used web CT more than younger students.

The findings also revealed that there was significant difference in the utilisation of ICT among students of different religion. The percentage of Christian respondents was higher than the Muslim and the traditional religions. This result indicated that religion influence

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the use of ICT facilities in the four selected universities in Southwest Nigerian. This result was contrary to the findings of Adetimirin (2008) that religion does not influence the level of ICT use for academic tasks as revealed from the chi-square analysis (0.244 at p>01001). She further stated that strategies to promote the utilization of ICT in Nigerian Universities need not pay more attention to undergraduate of one religion more than the other.

The findings also showed a significant difference in the utilisation of ICT between students from federal and state government owned universities. This implies that students in Federal universities used ICT facilities more than students in state universities. This could be because of the fact that Federal Government of Nigeria spends more funds on the Federal universities while the Governors who control the state universities spent less on the state universities thereby the university management could not have enough funds to purchase the needed ICT facilities. Students could only use the available ICT facilities in their respective institutions. This shows that there is a dichotomy between the universities in relation to the significant difference in the utilisation of ICT between the state and federal universities. This was contrary to the finding of Ajayi (2008) towards effective use of information and communication Technology (ICT) for teaching in Nigerian Colleges of Education that there was no dichotomy between the State and Federal Colleges of Education regarding the availability and use of ICT facilities for teaching and learning process.

Implication to Research and Practice

The study revealed that ICT facilities are available in the libraries and the students use the facilities. However, some demographic factors such as age, gender, religion and marital status affect the use of ICT.

The Based on the findings of this study, federal and state government universities in Southwest Nigeria to meet the students' expectation by enhancing their ICT facilities; there is also the need for increasing the subvention for the libraries. This will enable the University Librarians and the Management to subscribe to the needed and relevant materials for academic and research purposes.

CONCLUSIONS

The study showed that majority of the students used ICT facilities in their respective universities expect that there are some factors that influence the utilisation of the facilities. The findings of this study revealed that there was significant difference in the utilisation of ICT between male and female students. Male students made use of ICT more than the female. There was significant difference in the utilisation of ICT facilities between students of different age groups. Students below age twenty use ICT more than those between ages twenty and thirty years. It further revealed that there was a significant difference in the utilisation of ICT between married and unmarried students. The unmarried students utilize ICT more than the married. There was significant difference in the utilisation of ICT among students of different religions. The percentage of Christian respondents was higher than the Muslim and the traditional religions. This result indicated that religion influence the use of ICT facilities in the four selected universities in Southwest Nigeria. The students in Federal universities used ICT facilities more than students in state universities. The groups that use

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ICT more consequently experience greater benefits in terms of productivity and profit.

RECOMMENDATIONS

Based on the findings, the following recommendations were made:

The federal and state government should increase the subvention for the universities in order to meet the students' expectation.

The university management should ensure that the Institutional bandwidth is increased in all the universities.

There should be provision of uninterrupted power supply in Nigerian institutions.

The universities under study should provide computer literacy program to cater for low skill students.

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