

Influence of Information Technology Competence and Demographic Characteristics on Undergraduate Student's Perception of E-Portal.

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Abstract- Nigerian Universities have adopted the use of e-portal to enhance and connect with students, potential students, staff, parents and the global community. However, personal factors such as information technology competencies and demographic characteristics etc of undergraduate students have brought about digital divide and mix feelings about the usefulness, ease of use and reliability of e-portal in their respective institution. This study therefore surveyed undergraduate students' assessment of university portals in selected private universities in South-West Nigeria. The multistage sampling technique was used to randomly select 1244 undergraduate students from the faculties of Social-Sciences and Management and Science and Technology in the selected universities. Data was collected with a self-structured questionnaire and analyzed using descriptive statistics, regression and correlation. The findings show that the major challenge students face in using the portals was unstable internet connection. Age and level of study were discovered to have significant influence on students' assessment of e-portal while gender and students' course of study do not significantly influence their assessment of university e-portal. There was also a positive relationship between students' demographic characteristics and their IT competence at $P > 0.05$ significant level. Furthermore, students' IT competence has significant influence on their assessment of the portal. The study therefore recommends that the university administration should expose students to more computer base programs that will improve their skills on the use of computer; adequate training should be provided for students on how to effectively use the e-portal.

Index Terms- E-portal, IT competence, demographic characteristics, perception

I. INTRODUCTION

In this age of information explosion, information is delivered in different formats, beyond the limitation of our imaginations. Hence, the potentials of electronic networks are breathtaking. The ever increasing presence of computer networks and the evolution of internet in the last decades have added value to the role of computers in higher institution of learning (Miltiadou and Savenye, 2003). Education is one of the key sectors that have been transformed by the application of the technology. Yushau, (2006) attested that computer has been integrated into the education system more than four decades ago.

The portal is a gateway to information and services on the web in the context of corporate intranets. University Portal

provides detail information where every story has a beginning, a middle and an end, where there will be links to all sorts of information needed by prospective student, undergraduate, alumnus, donor, staff member or international bodies. Educational activities such as downloading of study curriculum and course materials, delivery of course, student's registration, student's personal data management and access to examination results. Other activities that could be achieved through the use of e-portal are enhancement and features such as calendars, to do list, schedules, hours of operation, discussion groups and chat, announcement and alerts, reports and documents, search, emails, course schedules, grades, transcripts, links to reference materials, bookmarks, etc.

Most academic institutions in Nigeria have invested huge resources in the creation of institutional e-portals in order to take advantage of the possibilities that e-portals technology offers. This has made many academic institution and Universities in Nigeria to have their corporate presence on the web within the last decade. However, for the huge investment made of Nigeria University on the portal to materialize and fulfill its purpose, the university management must take note of some critical personal factors; IT competence and demographic characteristics of the potential users, which is the center of this study.

II. LITERATURE REVIEW

Students' IT competence as well as their demographic characteristics should be seen as critical factors in the integration of information technology system in educational sector. The use of computers in education is on the increase over the years, its use encapsulates elements like the software and hardware made available. Rieber (2005) noted and observed that in many developing countries, educators often give accounts for the full number of computers they have available in the schools, but the extent to which they are actually used by the students and even the faculty remain uncertain. Hence, individual's computer experience based on computer usage determines the level of belief in their skills and confidence about using computers to accomplish tasks. (Smith, 2001).

Overview of studies has shown that there are specific factors responsible for the gaps that exist between the expected and the actual level of students' computer competence (Saleh, 2008; Mc Cade, 2001). Amongst the factors are computer anxiety, inadequate instructor's training and support and gender. Students' computer competence does not just involve knowing how to use the computer but using it as a mechanism for

creating, processing, storing, problem solving and transfer of information and communication.

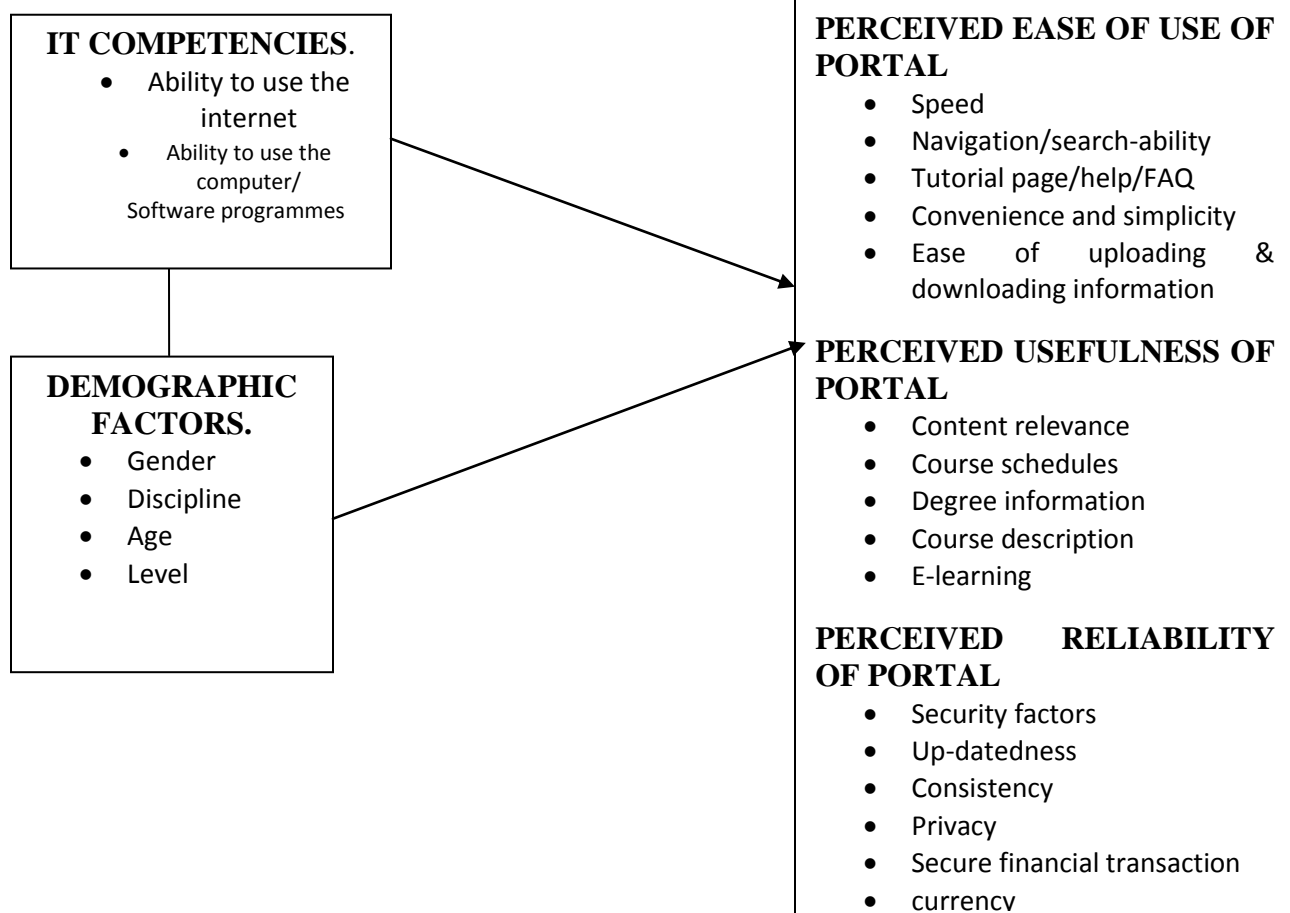
In relation to e-portal technology system and student IT competence, study has shown that the level of experience a user has with an information technology system will influence their perception of the level of effort they need and the ease of using any information system in their respective universities (Smith, 2001). An individual with high IT competence was more likely to see e-portal usage as requiring less effort and be easier to use. The relationship between IT competence, perceived ease of use, usefulness and adoption of information technology system has been confirmed in a number of studies. (Lu and Viehland, 2008; Park and Chen, 2007). A student with prior experience of using IT system would perceive information system as being easy to use. In measuring undergraduate students ICT self-efficacy, student's prior experience with technology should be of importance.

The role of education in creating or exacerbating performance differences on the basis of some demographic characteristics have been the source of considerable controversy in schools and in the popular and professional literature. Gender has been identified to be a strong predictor of attitudes and behavior in electronic information seeking and a major demographic factor that strongly influences information behavior (Ray and Chi, 2003). Research on computer competence in general also revealed that males on average have better computer

self-efficacy than females. The issues of gender and other demographic characteristic are very relevant in this age when considering students' proficiency in computer usage. The research on gender and computing has often, although not conclusive, reported that males have more experience and use of computer than females (Balka& Smith,2000).

Furthermore, in a study conducted by Shaw and Giacquinta (2000), he discovered that students course of study have a significant effect on their attitudes towards the value of computers in academic studies. He reported in his study that educational technology students use computers more frequently, for a wider array of purposes, and for greater number of hours each week than students in educational Administration, Business Education and Higher education programs. Hence, student's course of study plays a volatile role in the perception of any adopted information system. Contemporary perspectives suggest that demographic factors should be viewed more from socialization or experimental perspective as opposed to one based upon assumptions about innate differences in psychological processing. Since students are the principal users of educational e-portals, this study was conducted to understand the influence of IT competence and Demographic characteristics on undergraduate students' perception of e-portals in selected private universities in south-west Nigeria.

Conceptual Framework for the Study Assessment of E-Portals



Relevant of Conceptual Framework to the Study.

Independent Variables The independent variables in this study are the influence of IT competence & demographic characteristics of undergraduate students in private universities of South West Nigeria. The introductions of IT (information technology) in higher institutions of learning have brought about digital divide among undergraduate students. In other words, students have different level of competencies. Some are highly skilled, semi-skilled and even novices due to factors such as personal attitudes, self-concept, training, tutorial sections and family background. All these variables contribute in one way or the other to student’s perception of University E-portal. From the literature reviewed, personal/demographic characteristics of undergraduate students also influence their ICT perception. A study by Awolaye and Siyaanbola, (2006) confirmed that male students use the internet more than their female counterparts and much more on a daily basis. Also, Lowe and Mc Avly (2000) have also found that there are notable age differences regarding ICT use and skills. With young people are more likely to be ICT users and more ICT literate than older age groups. Similar, science- based students appear to use the ICTs more than the non-science based students. All these factors have a way to influence the perception of students. It is apparent that factors such as gender, discipline, age, level can influence user’s perception of universities E-portal. This study investigated the influence of IT competence and demographic factors on users’ perception of E-portals.

Dependent Variable The dependent variable in this model is students’ perception of University E-portal, which is measured using three constructs, namely perceived ease perceived usefulness and perceived reliable of portal. This construct is based on the theoretical model of this study TAM. The model focuses on the influence of two variables, perceived ease of use and usefulness to be fundamental determinants of user acceptance (Venkatesh et. al, 2003). It provides insight into factors that will influence user’s acceptance and perception of an information system such as IT competence and demographic characteristics. User’s acceptance has been defined as the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support (Dillon and Morris, 1996).

The TAM modal has been used extensively in educational settings to determine adoption of instructional technology by educators and students. TAM has also been modified and extended to include a range of additional antecedent variables to improve its predictive powers, such as Subjective norms, experience and motivation. It is assumed that these parameters (perceived usefulness, ease of use and reliability) will be determined or influenced by students IT competence and some demographic characteristics.

Objective of the study

The main purpose of this study is to investigate the influence of IT competence and demographic characteristics on undergraduate students’ perception of University e-portals in South-West Nigeria.

Research Question

1. What is the level of IT competence of undergraduate students in the selected private universities?
2. What challenges do undergraduate students face, while using e-portals?

Research Hypotheses

- The following null hypotheses will be tested in this study.
- H⁰₁: students’ IT competence has no significant influence on their perception of the ease of use, usefulness and reliability of the e-portal.
 - H⁰₂: Students’ demographic characteristics do not significantly influence their perception of the performance of the portal.
 - H⁰₃: There is no significant relationship between students’ demographic characteristic and their level of IT competence.

III. METHODOLOGY

This study was a survey carried out among undergraduate students of three private universities in south-west Nigeria. The three universities were created between 1999-2002 and also have functional web portals. The universities are Babcock University, Covenant University and Bowen University. The first two are located in Ogun state while the latter is located in Osun state. The total population of students in these universities the time of study (2013) was 29,990.

The multi-stage technique was used for this study in order to have a representative sample. First, the faculties of social sciences/management and science and technology were randomly selected from Universities. Then, the departments of business administration and mass communication were selected from the faculty of social sciences/management while the departments of computer science and Bio-chemistry were selected from the faculty of science and technology. Finally, 20% of the students in each department within the two faculties were randomly selected as respondents for this study. This gave a total of 1,244 respondents. A structured questionnaire designed by the respondents was used to collect data for the study. The data was analyzed using frequency and percentage distribution, mean, regression, and correlation. A total of 1,099 questionnaires were retrieved (88.3%).

IV. RESULT AND DISCUSSION OF FINDINGS

Table 1: Distribution of Respondent Demographic characteristics

Demographic Characteristics	Categories	Frequency	Percentage
<i>Institution</i>	Babcock	322	29.3
	Bowen	381	34.7
	Covenant	396	36.0
<i>Gender</i>	Male	483	43.9
	Female	616	56.1
<i>Age</i>	Below 20	110	19.6
	21-25	145	25.8

	26-29	306	54.5
	30 and above	32	2.9
<i>Department</i>	Business admin	505	46
	Mass comm	168	15.3
	Computer Sci	139	12.6
	Bio-chemistry	287	26.1

Source: Field Survey, 2014

Table 1 shows the frequency and percentage distribution of respondents' institutions, gender, age and department. Regarding the institution Covenant University has (396, 36.0%) which is the highest number of respondents. Female respondents were the majority in this study with (616, 56.1%). Age category of the respondents indicated that a larger size of the respondents are below 20years (440, 40%) and within the ages of 21-25 years (450, 40.9%). Finally, Business Administration department have the majority respondents. (505, 46%).

IT Competence Level of Undergraduate Students.

Table 2: Distribution of Respondents by years of experience with using computer

Years	Frequency	Percent
1-3	535	48.7
4-6	411	37.4
7-9	90	8.2
10+	63	5.7
Total	1099	100.0

Source: Field Survey, 2014

Table 2 shows that 535(48.7%) of the respondents have a length of experience of 1-3 years using computer, 411(37.4%) students had made use of the computer for the last 4-6 years followed by 7-9 experience 90(8.2%) while 63(5.7%) have experience length of 10years and above. The result implies that most of respondents have been exposed to computer usage just for a period of 1-3 years, thus this might have an effect on how well they can use the computer. This view is supported by Smith (2001) he reported that an individual's computer experience based on computer usage determines the level of belief in their skills and confidence on using computer to accomplish tasks.

Table 3: Distribution of Respondents' on ICT Skills Using the Computer and Internet.

	ICT SKILLS	Not Competent	Competent	Highly competent	Mean	St.D
1	Word processing skills	157(14.3%)	830(75.5%)	112(10.2%)	1.9591	.49327
2	Sending email	210(19.1%)	604(55%)	285(25.9%)	2.1137	.75795
3	Online discussion	252(22.9%)	562(51.1%)	285(25.9%)	2.0983	.85432
4	Software installation	542(49.3%)	508(46.2%)	49(4.5%)	1.5514	.58038
5	Using a WWW search engine e.g. goggle	191(17.4%)	407(45.6%)	501(37%)	2.3048	.77817
6	Use of spreadsheet e.g. MS Excel	607(55.2%)	480(43.7%)	12(1.1%)	1.4586	.51997
7	PowerPoint design & presentation	687(62.5%)	375(43.1%)	37(3.4%)	1.4086	.55611
8	Downloading a file from the internet	309(28.1%)	446(40.6%)	344(31.3%)	2.0773	.85167
9	Bookmarking useful Web address	478(43.5%)	295(26.8%)	326(29.7%)	1.8617	.84445
10	Graphics design e.g. Photoshop	863(78.5%)	212(19.3%)	49(4.5%)	1.2366	.47380

Source: Field Survey, 2014

Result from table 3 reveals that most respondents are not highly competent using the computer programs listed above. Not

greater than 37% of the respondents are highly competent using search engines (501, 37%) and (344, 31.3%) students are highly

competent downloading files from the internet. However, most respondents described their ICT skills to be competent using word processing programs (830, 75.5%), sending of emails (604, 55%) and for social networking (582, 51.1%). Majority of the respondents' are not competent using the computer for graphic design (863, 78.5%), power point design (687, 62.5%), use of spreadsheet programs (607, 55.2%) and installation of software (542, 48.3%).

Challenges Undergraduate Students' Face Using E-Portal

Table 4: Distribution of Respondents' on Challenges of Using E-portals.

CHALLENGES	Respondents (%)	Mean	St.D
The server instability makes my activities on the portal difficult	991(90.2%)	1.0983	.29782
The internet network service within my school is slow	625(56.9%)	1.4313	.49548
Login on my school portal is difficulty	463(42.1%)	1.5787	.49399
Compulsory registration to portal site of my school is frustration	417(37.9%)	1.6206	.48547
There are cases of wrong information on my school portal	388(35.3%)	1.6470	.47814
My pin is often rejected	356(32.4%)	1.6761	.46819
Portal is complex to operate	330(30%)	1.6997	.45859
My school does not have functional cyber-cafes	286(26%)	1.7398	.43896
There is no constant power supply in my school	260(23.7%)	1.7634	.42517
I find information on my school portal not accurate	218(19.8%)	1.8016	.39895

Source: Field Survey, 2014

The table above reveals the challenges often faced by students using e-portals. Majority (991, 90.2%) of the respondents agreed that internet server instability makes their activities on the portal difficult. In the same vein, 625(56.9%) respondents also agreed that another prominent challenge using the portal is the slow pace of internet network service within the school which makes login on the portal difficult. This result indicates that the major challenge encountered by students is the poor internet connectivity within their schools making it frustrating to use the portal.

Test of Hypotheses

IT Competence Influence on Students' perception of e-Portal Performance.

H⁰: Students' IT competence has no significant influence on their perception of ease of use, usefulness and reliability of e-portals.

H¹: Students' IT competence has significant influence on their perception of ease of use, usefulness and reliability of e-portal.

Table 5: Result of regression to determine IT competence influence on respondents' perception of ease of use, usefulness and reliability of e-portal.

Variable	Constant	Std. Error	t-Stat	P value.
C	1.190	0.055	21.620	0.000
IT competence	0.138	0.027	5.084	0.003

a. Dependent Variable: Ease of use

R-Squared 0.491
F-Statistic 25.852
Adjusted R-Squared 0.414
Prob (F-statistic) 0.000

Variable	Constant	Std. Error	t-Stat	Prob.
C	.691	.043	16.245	0.000
IT competence	.333	.017	19.034	0.014

a. Dependent Variable: Usefulness of e-portals.

R-Squared 0.498
F-Statistic 362.305
Adjusted R-Squared 0.425
Prob(F-statistic) 0.000

Variable	Constant	Std. Error	t-Stat	
C	0.875	0.041	21.521	0.000
IT competence	0.376	0.025	15.318	0.000

a. Dependent Variable: Reliability of e-portals

R-Squared 0.510
F-Statistic 234.634
Adjusted R-Squared 0.421
Prob(F-statistic) 0.000

Source: Field Survey, 2014

Table 5 above shows the result of the regression analysis carried out to ascertain the influence of students' IT competence on their perceived ease of use, usefulness and reliability of e-portal. The result reveals that IT competence has significant influence on their assessment of ease of using e-portal. It p-value is = 0.003 which is < 0.05. H⁰ is rejected and H¹ is accepted. Meaning that IT competence of undergraduate students' plays a vital role on their assessment of the portal. Concurrently, students' IT competence was found to significantly influence their assessment on the usefulness of e-portal. This implies that as students IT skills increases it influences their assessment of the usefulness of e-portal. The p value is = 0.014 which is < 0.05. The formulated H⁰ was rejected and H¹ was accepted, meaning that IT competence of respondents' significantly influences their assessment of usefulness of e-portal.

Finally, undergraduate students' assessment of the reliability of portal is significantly influenced by their IT competencies. The result above reveals that the p value = 0.000 < 0.05. There is the rejection the null hypothesis (H⁰) and acceptance of the alternative hypothesis (H¹). Implying that IT competence of student has a significant influence on the reliability of e-portal. This result confirms the finding of previous studies who report that IT competence of an individual have a way of influencing their assessment of any information system. (Hituch and Lee, 2006; Ndubusi et al, 2001).Also the relationship between IT competence, perceived ease of use and usefulness has been

confirmed in a number of studies. (Lu and Viehland, 2008; Park and Chen, 2007).

Influence of Demographic Characteristics on Students Assessment of Performance of e-portal.

H⁰: students' demographic characteristics do not significantly influence their assessment of performance of e-portal.

H¹: Students' demographic characteristic has a significant influence on their assessment of the performance of e-portal.

Table 6: Result of multiple regression to determine influence of Students' demographic characteristics on their perception of the performance of e-portal.

Demographic characteristics		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.039	.102		29.814	.000
	GENDER	.053	.043	.040	1.240	.215
	AGE	-.156	.027	-.191	-5.832	.000
	LEVEL	-.094	.020	-.159	-4.793	.000
	DEPARTMENT	-.038	.016	-.073	-2.369	.018

a. Dependent Variable: Students' assessment

Source: Field Survey, 2014

The result 6 above shows that gender has no significant influence on their assessment of the performance of e-portal. Since p value is = .215 which is > 0.05 level of significant, we accept H₀. This implies respondents gender have no significantly influence on their assessment of the performance of e-portal. This collaborates with Kaino, (2008), he reported that there is no significant gender difference in students' perceived usefulness of computer. However, age was found to influence students' assessment of the portal. The P value is =.000 and which is < 0.05. We reject the null hypothesis H⁰. This depict respondents' age has a significant influence on their assessment of portal concluding that as the age of students increases it influence their assessment of portal. Shaw and Giacquita, (2000) reported that older students' shows more resistance than younger students toward computing.

Furthermore, the level of study of respondents' was found to have a significant influence on their assessment of the performance of e-portal. The result above reveals that P value is = .000 which is < 0.05. That is H⁰ is rejected and H¹ accepted. This implies that undergraduate students' level of study significantly influence their assessment of the performance of e-portal.

Finally, the result above reveals that students' department does not significantly influence their assessment of e-portal. The p value is = .018 which is > 0.05. Further revealing that various departments selected in this study (Business management, mass communication, computer science and Bio chemistry) have not significant influence on their assessment of the performance of e-

portal. This result collaborates with Hong, (1998) that there were no significant differences in undergraduates' attitudes towards computer and their different field of study. However, this contradicts Shaw and Giacquinta (2000) findings, they discovered the students studying technology/ science related courses have a more positive attitude toward the value of computer in academic studies than other course of study.

To affirm the relationship between students' demographic characteristic and their IT competence a test of hypothesis was conducted. The result revealed a positive relationship between students' demographic characteristics and their IT competence. This was tested using correlation analysis which value is 0.12 and is significant at p>0.005. This finding is also similar to previous studies that record that demographic variable of students' as a relationship with their ICT ability and attitudes to use computer. (Shaw and Giacquata, 2002, Annetta, Slyhuis and Wiehe, 2007). Furthermore, Smith, (2001) stated that students' levels of interaction with computer are sometimes dependent on some demographic variables.

Gender and course of study of students' were found not to significantly influence their assessment of e-portal. However, age and level of study were significant factors influencing students assessment of e-portal. This collaborates with Gordon, Killey, Shevlin, McIlroy and Tierney (2003) that students introduced to computer at an early age have a positive attitude towards the use of computer also Shaw and Giacquita (2000) reported that older students show more resistance than younger students toward computing and that males students are more interested and skilled in the use of computers than females. Also, Kaino, (2008)

reported that there is no significant gender difference in students' perceived usefulness of computer.

Relationship between students' Demographic Characteristics and their level of IT Competence

H⁰: There is no significant relationship between student's demographic characteristics and their level of IT competence.

H¹: There is significant relationship between students' demographic characteristics and their level of IT competence.

Table 7: Result of correlation to determine Students' demographic characteristics and their IT competence.

Variables	Correlation(r)	Mean	St.d	P.Value
Demographic characteristics	0.72	2.7125	0.58607	0.012
IT competence		1.6033	0.56542	
N	1099			

Source: Field Survey, 2014

The result on table 7 reveals a positive relationship between students' demographic characteristics and their IT competence. This was tested using correlation which P value is 0.012 and it is significant at $p > 0.005$. Based on the premises of the statistical result the null hypothesis H⁰ there is no significant relationship between student's demographic characteristics and their level of IT competence is rejected in favour of the alternative hypothesis. This finding is similar to that of previous studies who reported that demographic variables of students' have a positive relationship on students' ICT ability and attitudes to use computer. (Liu, 2002, Shaw and Giacuinta, 2002, Hong, 1998 and Annetta, Slyhuis & Wiehe, 2007).

V. CONCLUSION

Introducing information technology innovation into educational institution is a good direction but some factors should be considered important in order to overcome any difficulties of application and proper utilization of this technology especially among undergraduate students. especially, when ICT competencies of undergraduate students coupled with some demographic characteristics have been found to be a strong determinant for the appropriate usage of university e-portals. The number of computers available in various higher institution of learning does not determine students ICT competence, but the extent to which they are actually used by the students is important. As findings from this study indicate that most undergraduate students were not well satisfied with their present ICT skills.

Furthermore demographic characteristics most importantly age, and level of study was found to be significant in the adoption and perception of university portal by students. Hence, Universities should expose their students to more computer based programs that will improve their skills in the use of computer especially technical programs such as the use of spreadsheet, graphic design among others. Given that one of major functions

of E-portal is to make access to information and learning easier and reachable universities should try to incorporate programs such that it will meet the necessary needs of the students such as e-learning, access to school library catalogue, interacting with lectures among other. Finally, there should be a special and adequate training of undergraduate student on how well to use the portals for its various tasks, especially among fresher to enable full utilization of the portal.

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