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Demographic Characteristics and Information Technology Competence Skills on the Use of E-Portal among Undergraduates in Adeyemi College of Education, Ondo

BY

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Abstract

This study investigated the influence of demographic characteristics and information technology competence skills on the use of E-portal among undergraduates in Adeyemi College of Education, Ondo State, Nigeria. The findings revealed a positive significant relationship between IT competence skill and their use of e-portal ($r = .190, p < 0.05$). Gender has a significant influence on the use of e-portal ($t = 2.071, p < 0.05$) also, respondents age has a significant influence on use of e-portal ($F_{(3; 246)} = 2.892; p < 0.05$). The study concluded that IT competence skills and demographic characteristics of undergraduates have an influence on the use of E-portal. It is recommended that higher institutions of learning in Nigeria should further explore the potentials of E-portal for its teaching, learning and research.

Keyword: Gender, Age, Information Technology, E-portal, Undergraduates, Competence skills

Introduction

The potentials of the electronic network and the continuous advancement of technology have offered the possibilities for information to be stored and disseminated in different formats. The paramount attention given to internet technology globally have necessitated a change in higher institutions of learning, hence the traditional approach of managing school information and record is no longer an option in the 21st century.

Recently, higher institutions of learning in Nigeria have recognized the importance of being actively represented on the internet. Educational activities such as the development of curriculum and course materials, delivery of course, student's registration, student's data management and access to examination results are now computer-driven in most institutions of higher learning. Omotunde (2015) is of the opinion that for higher institutions of learning to remain relevant and competitive in the 21st century, there is the need to be involved in portal development. Masrek (2007) and Al-Busaidi (2012) asserts that higher education institutions,

particularly universities in developed countries are now heavily involved in portal development which has now become an important tool for service delivery and communication between faculty members, administrative staff and most importantly students.

Pena-Lopez (2007) described a web portal/ e-portal as a site that functions as a point of access to information on the World Wide Web and it presents information from diverse sources. A portal is an application of information technology that facilitates complex information interaction by presenting them in an easy-to-use web-based interface. Educational portals serve both as public gateways to information and as private gateways to the resources a particular institution wants to make available only to its members (Omotunde, Babalola, and Omotunde 2014). A university portal is vital because it provides a common entry point for all services available at the university, which results in improved user experience and improved relationship with and between stakeholders, particularly students (Abdulhamid and Idris 2010). The concept of e-portal in higher education offers the ability where there will be links to all sorts of information needed by prospective student, undergraduate, alumnus, donor, staff member or international bodies.

Omotunde and Babalola (2014) observed that 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 institutions and Universities in Nigeria to have their corporate presence on the web within the last decade. Furthermore, Omotunde, Babalola and Omotunde (2014) agreed that the widespread adoption of the e-portal technology by academic institutions has instigated research into the usability of web portals in Nigeria.

The recognition, frequent use, and acceptability of the Web and Portal technology has not only changed the online process of processing students' record, but it has also personalized both the access to student information available and how students engage and team up with each other on the portal (Ballard, 2010). The web portal was introduced to the Nigerian educational system by the defunct Joint Admission Matriculation Board (JAMB) in 2002 so as to reach out to its large number of students. It was later adopted by other examination bodies such as West African Examination Council (WAEC) and various institutions of higher learning. Adeyemi College of Education was introduced to the use of e-portal in 2007 but it was fully adopted in 2015. Agbatogun, Ajelabi and Oyewusi (2011) stated that the e-portal is gaining ground in Nigerian institutions in order to reduce students' pressure during registration, curtail fraud, reduce

students' congestion in offices, reduce paper document and reduce stress on the part of the students.

The various reasons why Universities have an e-portal includes: information customization, information personalization, efficiency in accessing information (workflow) Link integrity, 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, CPGA's, transcripts, links to reference materials, bookmarks, etc. The e-portal has been said to be an alternative and effective method to aid easy fulfillment of students' academic tasks such as processing admission, application forms, students' enrolment, selection of courses, payment of fees, checking of grades via the internet.

In recent years, the National Universities Commission (NUC) and other international bodies in tertiary education globally have come up with the web metrics of universities across the world to highlight the growing importance of the web to the running and administration of universities. The higher the presence of usability of universities on the web for its various activities the higher it's ranking. Hence, this reflects the importance's of e-portal to academic higher institutions.

However, no matter the huge investment made by Nigeria University on the portal to materialize effectively and fulfill its purpose, the management of higher institutions of learning must take note of some critical personal factors; Information Technology (IT) competence and demographic characteristics of the potential users (i.e. undergraduates) who are the focus in this study. Students' information technology competence skills as well as their demographic characteristics should be seen as critical factors in the integration of information technology in educational sector.

Johnson, Bartholomew, and Miller (2006) explained that student's IT competence level is not just knowing how to use computers but to use it as a tool for organization, communication, research and problem solving by surfing the web of e-mail accessing the internet and a working knowledge of the basic capability of application of software. The issues of demographic characteristics (i.e. age, gender, level of course of study and faculty) are very relevant in this era when considering students' IT usage. Studies have revealed critical factors that affect students' use of IT which include; gender, (Tsai and Lin 2004: Birol et al. 2008), age, (Chen and Hitt 2002; Lyons 2004; Schimmel et al. 2013), faculty and level of course of study, (Odell et al. 2000; Anderson 2001; Sam, Othman, and Nordin, 2005). This study is therefore undertaken to

investigate the extent to which the predictive variables (Demographic characteristics and IT competence skills) influence undergraduate students' use of e-portals in Adeyemi College of Education, Ondo, Nigeria.

Research Question

The study was conducted to answer the following research questions:

1. What IT skills do Undergraduates Adeyemi College of Education, Ondo possess?
2. What does undergraduates of Adeyemi College of Education use e-portal mostly for?
3. What is the perception of undergraduates towards the use of e-portal in Adeyemi College of Education, Ondo?
4. What are the challenges faced by Undergraduates using e-portal in Adeyemi College of Education?

Research Hypothesis

The following hypothesis will be tested in this study,

Hypothesis 1: There is no significance relationship of undergraduates' Information Technology competences skills on the use of e-portal in Adeyemi College of Education, Ondo.

Hypothesis 2: There is no significant influence of demographic characteristics (age, gender, level of course of study and faculty) on undergraduates' use of e-portal

Methodology

The study adopted a descriptive survey research design. The Undergraduates of Adeyemi College of Education, Ondo made up the target population. The multi-stage sampling technique was used in order to have a representative sample. All five faculties in the college (Languages, Art and Social Sciences, Sciences, Vocational and Technical Education and Education) were represented. A random selection of two departments from each of the five faculties were selected, (English, Yoruba, Geography, History, Chemistry, Physical and Health Education, Fine Arts, Home Economics, Guidance and Counseling and Social Studies) while 250 undergraduates were randomly selected from the selected departments. A structured questionnaire developed by Omotunde and Babalola (2014) titled 'Influence of IT Competencies and Demographic Characteristics on Undergraduate Use of E-portal' was used for data collection. The data was analyzed using frequency, percentage distribution, mean, standard deviation, Pearson Product Moment Correlation, T-test and ANOVA.

Result and Discussion of Findings

Demographic Information of Respondents

Table 1: Demographic Information on the Distribution of Respondents

Parameters	Classification (n=250)	Frequency (%)
Gender	Male	103(41.2)
	Female	147(58.8)
	Total	250 (100.0)
Age	15-19	79(31.6)
	20-24	120(48.0)
	25-29	46(18.4)
	30-34	5(2.0)
	Total	250 (100.0)
Level of Course of Study	100 level	88(35.2)
	200 level	103(41.2)
	300 level	48(19.2)
	400 level	11(4.4)
	Total	250 (100.0)
Faculty	Science	23(9.2)
	Languages	123(49.2)
	Art and Social Science	14(5.6)
	Education	75(30.0)
	Vocation and Technical Education	15(6.0)
	Total	250 (100.0)

Table 1 shows the frequency and percentage distribution of respondents by gender, age, level of course of study and faculty. The result shows that female had the highest number of respondents (147, 58.8%). Most of the respondents 48% (120) were between the age range of 20-24 years and most of the respondents were in 200 level (103, 41.2%). Majority of the respondents were from the faculty of languages (123, 49.2%).

Research Questions

Research question 1: What IT skills do undergraduates of Adeyemi College of Education, Ondo possess?

Table 2: ICT Skills among Undergraduate of Adeyemi College of Education

	ICT Skills	Mean	St.D
1	Word processing skills	3.01	.99
2	Use of spreadsheet e.g. MS Excel	2.64	.93
3	PowerPoint design& presentation	2.40	1.06
4	Graphics design e.g. Photoshop	2.53	.96
5	Software installation	2.42	1.12
6	Internet skills	2.42	1.12
7	Sending email	2.85	1.06
8	Online discussion	2.66	1.07
9	Downloading a file from the internet	2.99	1.04
10	Using a WWW search engine e.g. goggle	2.98	1.05
11	Bookmarking useful Web address	2.75	1.07
	Weighted Average		2.69

Key: 1= Not Competent, 2 = Not Very Competent, 3 = Competent, 4 = Highly Competent

Decision Value: 0.00-1.00 = Low, 1.00-2.44 = Average, 2.45- 4.00 = High

Results from table 2 shows that word processing skills was the most competent skill attained by undergraduates with a (mean = 3.01), ranked next is downloading files from the internet (mean= 2.99) which is closely followed by using search engine (mean= 2.98). The respondents also showed high level of IT competence in sending emails (mean=2.85), bookmaking useful web address (mean= 2.75), use of spreadsheet (mean=2.64) among others. Base on the value of weighted average (2.69 out of 4.00 obtainable), it can be inferred that the level of IT competence skills among undergraduates in Adeyemi College of Education, Ondo is high.

Research question 2: What does undergraduates of Adeyemi College of Education use e-portal mostly for?

Table 3: Use of E-portal among Undergraduates

S/N	Items	Mean	St. D
1	I make use of the portal to download lecture notes	2.73	1.57
2	I use portal to interact with my lecturer, colleagues	2.65	1.45
3	I receive some of my lectures through the use of my school portal	2.50	1.35
4	I can access my school library catalogue through the portal	3.12	1.45
5	I register my courses using my school portal	3.42	1.59
6	My school portal is use for e-learning	2.63	1.61
7	Career opportunities displayed on my school portal	3.08	1.45
8	I can use my school portal to source for needed information	3.60	1.44
9	I used the school portal to learn about my institution history	3.46	1.38
10	I use my school portal to pay necessary fees	3.58	1.43
11	I have access to my school calendar through the portal	3.82	1.42
12	I use my school portal to apply for admission	3.33	1.61

Result in table 3 reveals that most of the respondents use the portal to access the school calendar (mean= 3.82), ranked next is the use of the portal to source for the needed information (mean= 3.60). Also majority of the respondents use the e-portal to pay necessary fees (mean= 3.58), learn about the history of the institution (mean= 3.46), registering for course are done using the portal (mean= 3.42) and also the school portal is used for applying for admission (mean= 3.33). However, receiving lectures through the use of the portal was the least used (mean= 2.50).

Research question 3: What is the perception of undergraduates on the use of e-portal in Adeyemi College of Education?

Table 4: Perception of Undergraduates on the use of E-portal

S/N	Items	Mean	St.D
1	The portal is unnecessarily complex	3.06	1.28
2	The e-portal site is very fast and accessible 24hrs	3.25	1.37
3	Most people can learn how to use the portal very easy	3.17	1.37
4	The portal has a simple layout of content features	3.32	1.34
5	The site's search function is fast enough	3.24	1.44
6	I find it easy to use the web portal for what i want it to do	3.44	1.37
7	The information on the portal is always accurate	3.44	1.26
8	My school information on its portal site is clear	3.31	1.28
9	The information is sufficient enough to guide me through each procedure	3.27	1.32
10	I was given adequate training on how to use the portal	2.78	1.28
11	There is too much inconsistencies on my school portal	2.93	1.28
12	Information on the portal is up-to-date and current	3.30	1.24
13	Effective technical support is available all the time	3.16	1.38
Weighted Average		3.21	

Decision Value: Negative = 0.00- 1.44, Neutral = 1.45- 2.44, Positive = 2.45 – 5.00

Result in table 4 reveals that majority of the respondents (mean= 3.44) agrees that they find it easy to use the portal to do what they intend to do. Similarly, majority of the respondents' agrees that information on the portal is always accurate (mean= 3.44), further, most agreed that the portal has a simple layout of content features (mean= 3.32), information on the portal site is clear (mean= 3.31), information on the portal is up-to-date and current (mean= 3.30), the site search function is fast (mean= 3.24) among others. However, receiving adequate training on how to use the portal is the least on respondents' perception on the use of e-portal (mean= 2.78). Meanwhile, based on the value of the weighted average (3.21 out of 4.00 maximum value that can be obtained), which falls within the decision value for positive perception. It can be inferred that the perception of undergraduate students' on the use of E-portal is positive.

Research question 4: What are the challenges faced by Undergraduate using E-portal in Adeyemi College of Education?

Table 5: Challenges Undergraduates face Using E-portals.

Challenges	Frequency	%
The internet network service within my school is slow	183	16.2
My school does not have functional cyber-cafes	74	6.5
There is no constant power supply in my school	105	9.3
My pin is often rejected	87	7.7
Login on my school portal is difficulty	92	8.1
There are cases of wrong information on my school portal	98	8.7
Portal is complex to operate	84	7.4
Compulsory registration to portal site of my school is frustration	94	8.3
I find information on my school portal not accurate	97	8.6
Portal is time wasting	81	7.2
The server instability makes my activities on the portal difficult	136	12.0

Table 5 shows the challenges that undergraduate face using the college e-portal for it respective purpose. The result on the table shows that majority of the respondents agreed that the internet network service within their institution is slow 183(16.2%) and the server instability makes their activities on the portal difficult 136(12.0%). 74(6.5%) of respondents identified that the college does not have a functional cyber-cafes 74(6.5%) and that portal is time wasting 81(7.2%). This result indicates that the major challenges encountered by students are the slow internet service within their institution and the internet server instability.

Hypothesis Testing

Hypothesis 1: There is no significance relationship of undergraduate Information Technology competences skills on the use of e-portal in Adeyemi College of Education, Ondo.

Table 6: Results of Pearon Product Moment Correlation Analysis showing the relationship between IT Competence Skills of Undergraduates and their Use of E-portal

Variable	N	Mean	Std. Deviation	R	Sig p.	Remark
IT Competence Skills and Use of E-portal	250	29.69	6.07	.190	.003	Sig
	250	37.96	7.94			

Table 6 shows that there is a positive relationship between IT competence skills of undergraduates in Adeyemi College of Education and their use of portal ($r = .190$). This positive relationship is also shown to be significant ($N = 250$; $r = .190$; $p < 0.05$). Hence, hypothesis 1 is rejected.

Hypothesis 2: There is no significant influence of demographic characteristics (Age, Gender, Faculty, and Level of course of study) on undergraduates' use of e-portal

Hypothesis 2A: There is no significant influence of gender on undergraduates' use of e-portal

Table 7a: Summary of T-test showing Influence of Gender on the Use of E-portal

USE OF E-PORTAL	Variable	N	Mean	Std. D	df	T	Sig p.	Remark
	MALE	103	39.19	7.89	248	2.071	0.39	Sig
	FEMALE	147	37.10	7.89				

Table 7a shows that there is a significant influence of gender undergraduate use of e-portal ($df = 248$; $t = 2.071$; $p < 0.05$). Based on this result, hypothesis 7a is not accepted.

Hypothesis 2B: There is no significant influence of age on undergraduates' use of e-portal

Table 7b: Summary of One-Way Analysis of Variance showing Influence of Age on Undergraduates' use of E-portal

Age	N	Mean	SD
15-19 years	79	38.65	5.47
20-24years	120	37.88	8.27
25-29years	46	38.09	10.22
30-34years	5	28.00	0.00
Total	250	37.96	7.94

Analysis of Variance						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Between Groups	534.747	3	178.249	2.892	.036	Sig
Within Groups	15164.853	246	61.646			
Total	15699.600	249				

Table 7b shows that the overall mean score for undergraduates who are between 15 and 19 years is 38.65, the students between 20 and 24 years had mean score of 37.88, those between 25 and 29 years had mean score of 38.09 while those between 30 and 34 years had a mean score of 28. The ANOVA table shows that there is a significant influence of age on undergraduates' use of e-portal ($F_{(3,246)} = 2.892$; $P < 0.05$). Hence, hypothesis 7b is not accepted.

Hypothesis 2C: There is no significant influence of level of course of study on undergraduates' use of e-portal.

Table 7c: Summary of One-Way Analysis of Variance showing Influence of level of course of study on Undergraduate Students' use of E-portal

Level	N	Mean	SD
100 Level	88	38.14	5.39
200 Level	103	38.74	9.01
300 Level	48	36.02	9.06
400 Level	11	37.73	8.88
Total	250	37.96	7.94

Analysis of Variance						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Between Groups	246.153	3	82.051	1.306	.273	Not Sig
Within Groups	15453.447	246	62.819			
Total	15699.600	249				

Table 7c shows that the overall mean score for the students who are in 100 Level is 38.14, the students in 200 Level had mean score of 38.74, those in 300 Level had mean score of 36.02 while those in 400 Level had a mean score of 37.73. The ANOVA table therefore shows that there is no significant effect of level of course of study on the undergraduate students; use of e-portal ($F_{(3, 246)} = 1.306; P < 0.05$). Hence, hypothesis 7c is accepted.

Hypothesis 2D: There is no significant influence of faculty on undergraduates' use of e-portal

Table 7d: Summary of One-Way Analysis of Variance showing Influence of Undergraduates' Faculty on the use of E-portal

Faculty	N	Mean	SD
Science	23	33.39	7.47
Language	123	38.52	8.51
Art and Social Sciences	14	42.21	10.29
Education	75	37.03	6.48
Vocational Education	15	41.07	3.45
Total	250	37.96	7.94

Analysis of Variance						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Between Groups	982.185	4	245.546	4.088	.003	Sig
Within Groups	14717.415	245	60.071			
Total	15699.600	249				

Table 7d shows that the overall mean score for the undergraduates who are in Faculty of Science is 33.39, the students in Faculty of Language had mean score of 38.53, those in Faculty of Arts and Social Sciences had mean score of 42.21, the students in Faculty of Education had mean

score of 37.03 while those in Faculty of Vocational Education had mean score of 41.07. The ANOVA table therefore shows that there is significant influence of undergraduates' Faculty on the use of e-portal ($F_{(4, 245)} = 4.088$); $P < 0.05$). Hence, hypothesis 7d is not accepted

Discussion of Findings

This study examined the influence of undergraduates' demographics characteristic and IT competence skills on the use of e- assessment e-portals. With respect to the IT skills of the undergraduates, result shows that the level of IT competent skills among undergraduate students in Adeyemi College of Education, Ondo is high. This infers that undergraduate students have adequate skills to use computer to complement their academic activities. This result agrees with BrckaLorenz, Haeger, Nailos and Rabourn (2013) which attested that word processing is the major application that students are familiar with and use more often. Further, the finding in this study opposes Johnson, Bartholomew, and Miller (2006) conclusion that undergraduate students lack the ability to effectively use the computer to solve complex problems, communicate and accessing vital information. The study further revealed that most of the respondents use the portal to access the school calendar, source for the needed information and to pay necessary fees, however they fail to use the portal for academic related activities such as receiving of lectures. This finding corroborates that of Omotunde, Babalola, and Omotunde (2014) that university portals are not being optimized for academic activities, hence their usefulness is still very limited.

In terms of undergraduate students' perception on the use of e-portal, the result reveals that they find it easy to use the portal to do what they want to do, information on the portal is always accurate, the portal has a simple layout of content features and information on the portal is up-to-date and current. However, undergraduates are not given adequate training on how to use the portal. This contradict Astani and Elhindi (2008) and Omotunde, Babalola, and Omotunde (2014) findings which reported that respondents agrees that their school portal is complex to use, navigation between web pages is difficult and that they require technical assistance to use the portal. Further, it should be noted that Lack of training and technical support are factors that can negatively influence users' perception of information systems. This is supported by (Looney and Lyman, 2000). The finding also identifies the slow internet network service within the institution and the server instability as the challenges faced when using the e-portal. This supports the findings of Abuhamdieh and Sehwill (2008), Bringula and Basa (2011)

and Omotunde, Babalola and Omotunde (2014) who all concluded that the speed of internet service is a major constraint to effective use of ICTs in developing countries.

Finding from the study further reveals a significant positive relationship between IT competence skills of undergraduate students and use of portal. Also, there is a significant influence of gender undergraduates' use of e-portal. This result, reestablish previous studies finding on gender and its influence on use of information systems (Ono and Zavodny 2003; Birol et al 2008). However, this contradicts Omotunde and Babalola (2014) finding that gender of undergraduates does not significantly influence their assessment on the use of e-portal. Furthermore, the ANOVA statistical analysis revealed that there is a significant influence of age on undergraduates' use of e-portal. This affirms Jennings and Onwuegbuize (2001), Chen and Hitt (2002), Schimmel et al. (2013) and Omotunde and Babalola, (2014) that age contribute and influences users' perception and use of IT. Result also indicates that there is no significant influence of level of course of study by undergraduates on their use of e-portal. This collaborate with Omotunde and Babalola (2014) findings that the levels of study were significant factors influencing students assessment of e-portal. Finally, findings in the study revealed there is significant influence of undergraduates' faculty on the use of e-portal. This finding agrees with the study of Sam, Othman and Nordin (2005) conducted on University of Malaysia Sarawak undergraduate students. Findings in the study revealed that Students from the Faculty of Computer Science and Information Technology and the Faculty of Applied and Creative Arts were found to use the internet longer than those from the other faculties (Faculty of Resource Sciences and Technology, Faculty of Engineering, Faculty of Social Sciences, Faculty of Economic and Business, Centre for Language Studies, Faculty of Cognitive Sciences and Human Development). Also, Odell, Korgen, Schumacher and Delucchi (2000) study showed that science students use IT tools more as compared to social science students.

Conclusion and Recommendation

Research related to E-portal use in higher institutions of learning especially in developing countries need to be an ongoing endeavor because computer technology advances rapidly and usage habits changes accordingly. The IT competencies of undergraduates coupled with their demographic characteristics have been found to be a strong determinant for the appropriate usage of e-portals. However, the number of computers available in various higher institution of learning does not determine students IT competence, but the extent to which they are actually

used by the students is important. Therefore, it is necessary that higher institutions of learning in Nigeria pay close attention to the framework and usability of their E- portals by:

- Trying 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.
- Adequate training of undergraduates on how well to use the portals for its various tasks, especially among fresher.
- The internet network server speed (bandwidth) should be increased to enable easy access to information.

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