Information and Communication Technology Literacy Skills and Class Instruction: a Comprehensive Perception Survey of University of Benin First Year Students

Best Practice Article

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Abstract

This study investigates the influence of class instruction (GST 111 – use of library) on University of Benin (UNIBEN) first year students' information and communication technology (ICT) literacy skills. The study adopted the survey research method using the questionnaire as research instrument. First year students in the 2013/2014 academic session constituted the population of study. Simple random and total enumeration sampling methods were used to collect data from students in five out of twelve faculties in the university. The questionnaire used is a 4-point likert scale instrument: SA (Strongly agreed) = 4; A (Agreed) = 3; D (Disagreed) = 2; and SD (Strongly disagreed) = 1. Data was collected at the end of the first semester when the GST 111 – use of library was concluded. Results revealed that Computer, Software, Internet, WWW and ICT literacy skills of the students are high. There is a significant difference in Computer, Software, Internet and WWW and ICT literacy skills of the students per faculty. Majority (65%) of the students are skillful in ICT use. Class instruction is very well perceived by the students and it positively influenced students' ICT literacy skills. Gender and secondary school attended did not influence students' ICT literacy skills. There is no significant difference between male and female students' ICT literacy skills as well as students that attended private or public secondary schools. It is therefore concluded that the students are highly ICT literate and class instruction (GST 111 – use of library) course mainly influenced the students' ICT literacy skills thus the class instruction programme in the university is adequate and effective.

Keywords:
ICT literacy skills, Computer literacy, Software literacy, Internet literacy, WWW literacy, Class instruction, University of Benin, Undergraduates

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Introduction

Class instructions are avenues to impact literacy skills in students all over the world to make them life-long learners. Each university makes it a point of duty to provide class instructions to fresh students just admitted into the university to impart in them library and ICT literacy skills and some universities have found these programmes very useful especially in this ICT era. Despite the usefulness, class instruction contents vary in different universities. Rasaki (2008) found that the information literacy credit earning courses curricula of three African universities are deficient and none adequately met the requirements of students' information literacy skills. While some concentrated on library literacy skills others concentrated on information technology skills. This has resulted in students being deficient in both library and ICT literacy skills in many African countries. For instance, Elisam and Keya (2004) found that undergraduates in Makerere University, Kenya, have limited knowledge and skills in accessing computerised resources and digitised formats in full text and browsing the Internet. Dadzie (2009) concluded that a few information literacy initiatives such as computer literacy are being implemented in Ghanaians universities while in Nigeria, Aziagba and Uzoezi (2010) reported that library skill instruction courses taught in most tertiary institutions in Nigeria are deficient in the area of ICT. However, they opined that there are visible and encouraging beneficial impacts of library instruction on library users. To compound the situation, Nigeria is yet to fully adopt and implement ICT for teaching and learning in secondary schools (Adomi & Kpangban, 2010) as a result, ICT literacy skills of new undergraduates in Nigerian universities is not solid. The need therefore arose for new undergraduate students to be taught how they can operate and use ICT facilities. To be able to operate and use ICT, literacy skills in ICT are required. ICT literacy skills are set of skills required in using digital technology, communication tools, and/or networks to access, manage, interpret, evaluate and create information to function in a knowledge society. To determine ICT literacy skills of students, Oliver and Towers (2000) identified four distinct skills that are essential attributes of ICT literate students viz: ability to operate personal computer system, ability to use software for preparing and presenting work, ability to use the Internet and its various features, and ability to access and use information resources from the WWW. Therefore, ICT literacy skills comprised of computer, software, Internet and www literacy skills. Expertise in these skills will make the students ICT literate.

At the University of Benin (UNIBEN), class instruction (GST 111 – use of library and English) is a 2 credit unit course used to educate first year students on the use of the Library and English. The library component of the course is aimed at helping students develop library and ICT literacy skills to enable them use ICT facilities in the university library in the course of their study. Over the years, librarians in the university library have been teaching the library component of the course. The effectiveness of this course depends on students' participation, the course content and mode of instruction. The content of the class instruction covers all aspects of information literacy – library, Internet, computer, media and traditional literacy. This course is usually a two two-hour class but some instructors spend more than the stipulated time to ensure effectiveness of the lectures. For several years that this course has been taught in the university, no study has been conducted to establish any relationship between class instruction offered and the students' ICT literacy skills. This study therefore seeks to find a relationship between ICT literacy skills and class instruction received by the students. This is the trust of this study.

Statement of the problem

In UNIBEN, ICT facilities abound. There are two e-libraries with 228 computers link through wireless network to the Internet. There are over 100 computers in the faculty libraries accessible to students and faculty members. Several full-text electronic databases are available to students to use in the e-libraries. Without adequate ICT literacy skills such as basic computer operations, software applications, Internet use and WWW surfing skills, these resources cannot be used effectively. Class instruction received by the students as part of the GST 111 course is expected to influence the effective use of ICT resources and facilities in the university.

Examination at the end of the semester is not enough to assess the students ICT literacy skills and no recent evaluation has been conducted to assess the mode of presentation by the instructors, the course content, and impact of the course on ICT literacy skills of the students. In view of the above, this study therefore seeks to carry out a comprehensive assessment of ICT literacy skills of the students and its relationship with the class instruction (GST 111) received in order to assess the effectiveness of the course, mode of instruction and the students' overall ICT literacy skills.

Objectives of the study

The main objective of this study is to establish a relationship between class instruction and ICT literacy skills of first year students in UNIBEN. Specific objectives are:
1. Determine the level of computer literacy skills of first year UNIBEN students.
2. Determine the level of software literacy skills of first year UNIBEN students.
3. Determine the level of Internet literacy skills of first year UNIBEN students.
4. Determine the level of WWW literacy skills of first year UNIBEN students.
5. Determine the level of ICT literacy skills of first year UNIBEN students.
6. Compare overall students' ICT literacy skills per faculty.
7. Determine the level of UNIBEN students' ICT literacy skills by gender.
8. Assess the students' ICT literacy skills per secondary school attended.
9. Determine the level of students' perception of class instruction-GST 111.
10. Assess the categories of the students' ICT literacy expertise.

Research hypotheses

The following null hypotheses will be tested in this study at 0.05 level of significance.
Ho1: There is no significant difference in the students' computer literacy skills per faculty.
Ho2: There is no significant difference in the students' software literacy skills per faculty.
Ho3: There is no significant difference in the students' Internet literacy skills per faculty.
Ho4. There is no significant difference in the students' WWW literacy skills per faculty.
Ho5: There is no significant relationship between students' computer, software, Internet and
     WWW literacy skills
Ho6: There is no significant difference in the students' ICT literacy skills per faculty.
Ho7: There is no significant difference in ICT literacy skills of male and female students.
Ho8: There is no significant relationship between gender and students' ICT literacy skills.
Ho9: There is no significant difference in ICT literacy skills of students per secondary school
     attended.
Ho10: There is no significant relationship between secondary school attended and students' ICT
     literacy skills.
Ho11: There is no significant relationship of class instruction to the students' ICT literacy skills.

Literature review

Information and Communication Technology (ICT) literacy skills among undergraduates have long been investigated worldwide. Oliver and Towers (2000) reported high and improved level of ICT skills among Australian university students due to the proliferation of various ICT facilities and equipments among students. Similarly, Shanahan (2007) investigated information literacy skills of second year undergraduate medical radiation students at RMIT University in Australia and found that the students demonstrated substantial improvement in online electronic information skills. In the United States, Katz and Macklin (2007) revealed that despite coming of age with the Internet, many college students lacked ICT literacy skills necessary to use information. Ali et al (2010) found that Malaysian College students' use of electronic scholarly resources for their course assignments was minimal. At Assam University library, India, Sinha (2012) found that 81% of library users at Assam University are Internet and ICT literate. In

Africa, Kimani (2014) found that first-year undergraduates in Catholic University of Eastern Africa, Kenya possess computer and Internet skills but lacked skill in searching for information.

Students are expected to develop ICT literacy skills from secondary school. However, Adomi and Kpangban (2010) opined that secondary schools in Nigeria are yet to extensively adopt ICT for teaching, learning and research. As a result, secondary school graduates have low ICT literacy skills which are evident as they enter the university. Class instruction is then given to the students to remedy the situation. Ani (2010) found that undergraduate students in three Nigerian universities ly use Internet but exhibit poor level of e-resources usage essential for learning and research. At the University of Ibadan, Fatoki (2004) findings indicated that two third of the undergraduate students have the capacity to use Internet for their academic research work. At the University of Ilorin, Issa, Blessing and Daura (2009) revealed that the students lacked skills to use e-library. Similarly, Udende and Azeez (2010) reported some deficiencies and structural inadequacies in the use of the Internet for academic purposes by University of Ilorin students. At the Obafemi Awolowo University, Ile-Ife, Omotayo (2010) concluded that despite the high accessibility of the Internet, not all undergraduates of the institution are skilled to use it.

Adetimirin (2012) posits that undergraduates in federal universities possess good ICT literacy skills than their counterparts in state universities. In some private universities, Ilogho and Nkiko (2014) revealed low knowledge of information literacy skills among students in five selected universities in Ogun State in. At the University of Benin (UNIBEN), Chete, Oruoghor and Chete (2008) indicated that Physical and Life Sciences undergraduates highly use the Internet and World Wide Web for academic research purpose and e-mail communication. Ukpebor and Emojorho (2012) revealed that UNIBEN fresh students have low capacity of information literacy skills as they have fairly learnt information literacy skills in their respective secondary schools.

In terms of ICT literacy skills by gender, Sarfo et al (2011) found that Ghanaian students from urban areas have more positive attitudes towards technology than students from rural areas, and locality and gender did not influence their attitudes. In Canada, Buhay, Best and McGuire (2010) positively suggest that the instruction was particularly effective for female students than the male participants at the University of New Brunswick. In Malaysia, Zin et al. (2000) obtained a significant difference in computer literacy level between male and female students of the University Kebangsaan Malaysia. Male students had greater computer experience and use computer more frequently than female students. In Kuwait, Sajjad and Sumayyah (2009) found that 11th grade female governorate high students lacked skills to formulate search strategies and so do not make effective use of their school library.

In Nigerian universities, Sanni et al (2009) revealed that there was gender difference in the use of the Internet at the Obafemi Awolowo University, Ile-Ife. At the Niger Delta University, Baro and Fyneman (2009) found that male students are more digitally literate; utilize Internet, search engines and CD-ROMs than the female students. Bassi and Camble (2011) investigation showed that there exists a statistical difference in male and female university students' attitude towards ICT use in Adamawa State. Similarly, Ojeniyi and Adetimirin (2013) reported gender difference as gender influenced the use of ICT among undergraduates in Lead City University and the University of Ibadan. On the contrary, Anie (2011) reported insignificant gender difference among male and female use of digital library at the University of Ibadan.

Prior experience can influence ICT literacy skills among undergraduate students. Development of ICT skills should begin from the primary and secondary schools so that when the students enter higher institutions they will possess the skills to use ICT. Adomi and Kpangban (2010) opined that the low adoption of ICTs in secondary schools in Nigeria for teaching and learning has contributed immensely to low ICT skills of undergraduates in the universities. In Romania, Coravu (2010) noted that empiric observation of fresh students at

Carol I Central University Library of Bucharest showed that their information behavior is oriented towards the use of Internet resources because they have been exposed to ICT before entering the university.

In the area of class instruction, Nwezeh (2010) found library instruction at the Obafemi Awolowo University, Ile-Ife relevant and satisfactory to most students but it concentrated on library use and lacked ICT skills. Relating class instruction to ICT literacy skills, Waldman (2003) reported that incoming students of Baruch College, City University of New York are very familiar and use the Internet and library's e-resources with ease and age or gender had no significant effect on them because they had participated in information literacy initiative given by library faculty. Walsh (2008) revealed a significant increase in library use by students who received orientation at the University of Arizona, USA. Similarly, Gilbert (2009) opined that students who had multiple library instruction session during the first semester reported higher levels of confidence and greater use of library resources than students who had single instruction session. Vance, Kirk and Gardner (2012) concluded that library instruction have an impact on students performance as students who receive library instruction had higher grade point than those who did not. In Nigerian universities, Iroaganachi and Ilogho (2011) found that most Covenant University undergraduates in their 400 and 500 levels had knowledge and skills to search online reference materials and they have benefitted from orientation, induction, and information literacy skill programme organized for them. Bassi and Camble (2011) showed that male university students in Adamawa State acquired search skills through library instruction than female students.

From the literature reviewed above, most Nigerian undergraduates lacked ICT literacy skills to take full advantage of the e-resources and services available in their universities. Also, attempt to establish a relationship between class instruction and ICT literacy skills of first year students in Nigerian universities and UNIBEN in particular has not been researched.

Methodology

Descriptive survey research method was adopted in this study and the questionnaire was the instrument for data collection. The items in the questionnaire were adapted from standardized instruments of Freeman (2004) and Sasikala and Dhanraju (2011). The questionnaire covered demographic information, library literacy skills, ICT literacy skills, library instruction/GST 111 - use of library, mode of imparting literacy skills, and areas where literacy skills are required. The questionnaire is a 4-point likert scale instrument: SA (Strongly agreed) = 4; A (Agreed) = 3; D (Disagreed) = 2; and SD (Strongly disagreed) = 1. For any of the answers to be significant and accepted, it must score a mean of 2.5 and above. The questionnaire was administered to collect data from first year (100-level) students in UNIBEN. Simple random and total enumeration sampling methods were adopted in this study. Five faculties - law, life sciences, education, arts, and physical sciences were randomly selected from the 12 faculties in the university. Since the population of the students is homogeneous, a census or total enumeration of available students from the five faculties in a GST 111 class instruction was carried out. The questionnaire was administered by the researcher during a class session at the end of the GST 111 – use of library instruction course. All the 390 questionnaires administered were returned in usable form resulting in 100% usable response. Data collected were tabulated and analysed using frequency and percentage. ANOVA and Correlation was used to test the null hypothesis using SPSS.

Results and discussion

Objective 1. Determine the level of computer literacy skills of first year UNIBEN students

On computer literacy skills, result in Table 1 indicates that majority of the students are computer literate as all the eight items used to test their computer literacy skills had a mean score ranging from 2.79 – 3.35 and an overall mean score of 25.3872. The eight items were significant

resulting in majority of the respondents being highly (78.7%) computer literate. Similar result obtained by Padme and Dhande (2014) indicated that 91.89% of students in Dr. Babasaheb Ambedkar Marathwada University Library India are computer literate.

Table 1: Mean perception of computer literacy skill of the students

S/N	Computer operations	SD	D	A	SA	Mean	S.D
1	Turning a computer on	12 3.1%	8 2.1%	44 11.3%	326 83.6%	3.75	0.64
2	Opening a computer file	18 4.6%	31 7.9%	56 14.4%	285 73.1%	3.56	0.83
3	Deleting a computer file	29 7.4%	34 8.7%	73 18.7%	254 65.1%	3.42	0.93
4	Creating a directory or a folder	44 11.3%	75 19.2%	63 16.2%	208 53.3%	3.12	1.08
5	Copying a file from one disk to another	47 12.1%	93 23.8%	74 19.0%	176 45.1%	2.97	1.08
6	Connecting to the internet from a remote computer e.g. from home	54 13.8%	90 23.1%	79 20.3%	167 42.8%	2.92	1.10
7	Making a backup copy of a computer file	42 10.8%	120 30.8%	77 19.7%	151 38.7%	2.86	1.05
8	Installing a program onto a computer e.g. Microsoft word	59 15.1%	113 29.0%	70 17.9%	148 37.9%	2.79	1.11

To confirm if the above result is uniform across the faculties, faculty based students' computer literacy skills was computed. Result in Table 2 shows that the mean values of students' computer literacy skills differs in the faculties with physical sciences students being more computer literate. This advantage may be due to the fact that computer science students are in this faculty.

Table 2: Descriptive statistics of faculty based students' computer literacy skills

Faculty	Mean	Std. Deviation	N
Physical sciences	26.4433	6.7144	97
Law	26.0000	5.8083	107
Arts	25.6429	6.1717	28
Education	23.0123	6.2879	81
Life sciences	25.6104	5.9142	77
Total	25.3872	6.2847	390

Ho 1. There is no significant difference in the students' computer literacy skills per faculty
Correlation analysis in Table 3 shows that there is a significant difference in the students' computer literacy skills based on their faculty (F(4,385)=3.985, P<.05). The null hypothesis is therefore rejected indicating disparity in computer literacy skills among students in the faculties.

Table 3: Correlation analysis of computer literacy skills per faculty

Source of variation	Sum of square	DF	Mean square	F	Sig.
Faculty	610.870	4	152.717	3.985	.004
Error	14753.666	385	38.321		
Total	15364.536	389			

Objective 2. Determine the level of software literacy skills of first year UNIBEN students

In terms of software literacy skills, result in Table 4 revealed that of the seven items used to test the skills, six items were significant obtaining mean above 2.5. Only item 7 - creating a graph using spread sheet obtained a mean of 2.43. The whole items had a mean of 19.0821. It is therefore concluded that the students are highly (67.5%) software compliant as they can perform most software operations. Zin et al (2000) also found moderate software literacy skill among undergraduate students in Universiti Kebangsaan Malaysia.

Table 4: Mean perception of software literacy skills of the students

S/N	Software operations performed	SD	D	A	SA	Mean	S.D
1	Printing out a document	40 10.3%	79 20.3%	96 24.6%	175 44.9%	3.04	1.03
2	Placing an image or graphic into a document	47 12.1%	86 22.1%	105 26.9%	152 39.0%	2.93	1.04
3	Creating a picture or graphic using a computer	46 11.8%	110 28.2%	112 28.7%	122 31.3%	2.79	1.01
4	Using an extended word processing feature e.g. tables	59 15.1%	129 33.1%	91 23.3%	111 28.5%	2.65	1.05
5	Modifying an existing work processed document	69 17.7%	126 32.3%	72 18.5%	123 31.5%	2.64	1.10
6	Making a multimedia presentation e.g. PowerPoint	68 17.4%	136 34.9%	72 18.5%	114 29.2%	2.59	1.09
7	Creating a graph using a spreadsheet	66 16.9%	176 45.1%	61 15.6%	87 22.3%	2.43	1.02

To ascertain if the above result is uniform across the faculties, descriptive statistics of faculty based students software literacy skills was computed. Result in Table 5 shows that the mean values differ in the various faculties with physical sciences students being more software literate and education students the least.

Table 5: Descriptive statistics of the faculty based on students' software skills

Faculty	Mean	Std. Deviation	N
Physical science	20.4845	6.0830	97
Law	19.2991	6.0254	107
Arts	19.2143	6.8495	28
Education	16.8025	5.6952	81
Life science	19.3636	5.7558	77
Total	19.0821	6.0850	390

Ho 2. There is no significant difference in the students' software literacy skills per faculty

Result of correlation analysis in Table 6 shows that there is a significant difference in students' software literacy skills based on their faculty ($F_{(4,385)}=4.354$, $P<.05$). The null hypothesis is rejected. The result means that the students cannot equally use ICT to access needed information.

Table 6: Correlation analysis of students' software skills per faculty

Source of variation	Sum of square	DF	Mean square	F	Sig.
Faculty	623.346	4	155.836	4.354	.002
Error	13780.029	385	35.792		
Total	14403.374	389			

Objective 3. Determine the level of Internet literacy skills of first year UNIBEN students

Internet literacy skills of the students were assessed using seven items. Result in Table 7 shows that all the items were significant except item 7 – creating a WWW page that had a mean of 2.49 (approximately 2.5). Instructors should concentrate on this deficient aspect of Internet literacy skills. However, it can be concluded that the students are very highly (85%) Internet literate. Padme and Dhande (2014) and Sinha (2012) obtained similar result that 71.35% and 81% of users at Dr. B. A. Marathwada and Assam University libraries, India are Internet literate.

Table 7: Mean perception of Internet operations skills of the students

S/N	Internet skills required	SD	D	A	SA	Mean	S.D
1	Can you download a file from the Internet/WWW e.g. Music. Game	20 5.1%	13 3.3%	63 16.2%	294 75.4%	3.62	0.78
2	Can you take part in discussion/chat on the net	22 5.6%	20 5.1%	60 15.4%	288 73.8%	3.57	0.83
3	Can you use the WWW to find specific information	22 5.6%	26 6.7%	62 15.9%	280 71.8%	3.54	0.85
4	Can you save an image or graphic from a WWW page	22 5.6%	31 7.9%	70 17.9%	267 68.5%	3.49	0.87
5	Can you send an e-mail message	22 5.6%	36 9.2%	71 18.2%	261 66.9%	3.46	0.88
6	Can you send an attachment with e-mail message	25 6.4%	76 19.5%	73 18.7%	216 55.4%	3.23	0.98
7	Can you create a WWW page	70 17.9%	159 40.8%	62 15.9%	99 25.4%	2.49	1.06

To determine uniformity of the above result across the faculties, descriptive statistics of Internet literacy skills per faculty was analysed. Result in Table 8 shows that the mean values for Internet literacy skills were different in the faculties with physical sciences students being more Internet literate, followed by life sciences and law students with education students being the least.

Table 8: Descriptive statistics of faculty based students' Internet literacy skills

Faculty	Mean	Std. Deviation	N
Physical science	24.4124	4.5934	97
Law	23.4579	4.6870	107
Arts	22.7500	5.1036	28
Education	22.0741	5.1205	81
Life science	23.7013	4.6142	77
Total	23.4051	4.8191	390

Ho 3. There is no significant difference in the students' Internet literacy skills per faculty

Correlation analysis in Table 9 shows a significant difference in the students' Internet literacy skills based on their faculty (F(4,385)= 2.863, P<.05). The null hypothesis is therefore rejected.

Table 9: Correlation analysis of students' software skills per faculty

Source of variation	Sum of square	DF	Mean square	F	Sig.
Faculty	260.988	4	65.247	2.863	.023
Error	8773.001	385	22.787		
Total	9033.990	389			

Objective 4. Determine the level of WWW literacy skills of first year UNIBEN students

WWW literacy skills of the students were also assessed. Result in Table 10 indicates that the students are highly (81.3%) WWW literate as they were proficient in seven of the eight skills assessed. In Boolean operators, they had a mean score of 2.47. Padme and Dhande (2014), Bansode (2012) and Sasikala and Dhanraju (2011) obtained similar results in three Indian universities. So, the use of Boolean operators should be given more attention by the instructors.

Table 10: Mean perception of WWW literacy skills of the students

S/N	www operations performed	SD	D	A	SA	Mean	S.D
1	Ability to use search engines e.g. Yahoo, Google, MSN etc	19 4.9%	20 5.1%	63 16.2%	288 73.8%	3.59	0.80
2	Using keywords or phrases to search for information on the WWW	19 4.9%	37 9.5%	72 18.5%	262 67.2%	3.48	0.86
3	Finding useful information from WWW searching	20 5.1%	21 5.4%	106 27.2%	243 62.3%	3.47	0.82
4	Ability to use known WWW address to find useful information	22 5.6%	34 8.7%	95 24.4%	239 61.3%	3.41	0.87
5	Using information from the WWW in projects and /or assignment	31 7.9%	48 12.3%	110 28.2%	201 51.5%	3.23	0.95
6	Ability to copy and paste information from WWW search to your document	31 7.9%	73 18.7%	66 16.9%	220 56.4%	3.22	1.01
7	Ability to use bookmark to record a useful WWW address	35 9.0%	68 17.4%	96 24.6%	191 49.0%	3.14	1.00
8	Ability to use advance search techniques (Boolean operators)	46 11.8%	187 47.9%	85 21.8%	72 18.5%	2.47	0.93

To confirm if WWW literacy is uniform in all faculties, descriptive statistics of WWW literacy per faculty was computed. Result in Table 11 shows that the mean values for WWW literacy skills were different in the faculties with physical sciences students being more WWW literate.

Table 11: Descriptive statistics of faculty based students' WWW literacy skills

Faculty	Mean	Std. Deviation	N
Physical science	27.4021	4.6785	97
Law	26.2523	5.0769	107
Arts	25.6071	4.8636	28
Education	24.5309	5.2633	81
Life science	25.5974	5.7794	77
Total	26.0051	5.2240	390

Ho 4. There is no significant difference in the students' WWW literacy skills per faculty

Result in Table 9 shows that there is a significant difference in the students' WWW literacy skills based on their faculty ($F_{(4,385)} = 3.662$, $P < .05$). The null hypothesis is therefore rejected.

Table 12: Correlation analysis of students' WWW literacy skills per faculty

Source of variation	Sum of square	DF	Mean square	F	Sig.
Faculty	389.112	4	97.278	3.662	.006
Error	10226.877	385	26.563		
Total	10615.990	389			

Ho 5: There is no significant relationship between students' computer, software, Internet and WWW literacy skills

Attempt was also made to ascertain if there is any significant relationship among computer, software, Internet and WWW literacy skills of the students by subjecting them to further analysis. Result in Table 13 indicates that, there is a positive relationship between computer and software literacy skills (r=.800, P(.0001)<.01), computer and Internet literacy skills (r=.621, P(.0001)<.01), computer and WWW literacy skills (r=.616, P(.0001)<.01), Internet and software literacy skills (r=.527, P(.0001)<.01), WWW and software literacy skills (r=.589, P(.0001)<.01), Internet and WWW literacy skills (r=.797, P(.0001)<.01) respectively. The implication of this result is that none of these literacy skills should be neglected as deficiency in one can affect the others. For instance, a student literate in computer can use Internet and the WWW.

Table 13: Correlation analysis of computer, software, Internet and WWW literacy skills

	Computer skills	Software skills	Internet skills	WWW skills	Mean	S.D
Computer skills	1				25.3872	6.2847
Application skills	.800**	1			19.0821	6.0850
Internet skills	.621**	.527**	1		23.4051	4.8191
WWW skills	616**	.589**	.797**	1	26.0051	5.2240

** Sig. at .01 level

Objective 5. Determine the level of ICT literacy skills of first year UNIBEN students

The foregoing four measurements of ICT literacy skills – computer, software, Internet and WWW literacy skills above showed that they are all significant and contribute to the overall ICT literate skills of the students. When computed together, the overall ICT literacy skills of the students indicate that most of the students are highly (78%) ICT literate scoring a mean of 93.8795 as presented in Table 14. Sinha (2012) obtained similar finding that 81% of Assam University library users in India are ICT literate. This study result is an improvement on Ilogho and Nkiko (2014) finding that students in five private universities in Ogun State do not have good ICT literacy skills and Ojeniyi and Adetimitin (2013) finding that indicates lack of ICT literacy skills among Lead City and University of Ibadan students respectively in Nigeria.

Table 14: Descriptive statistics of ICT literacy skills of the students

Variables	N	Mean	Std Deviation
ICT literacy skills	390	93.8795	19.3582
Computer literacy skills	390	25.3872	6.2847
Software literacy skills	390	19.0821	6.0850
Internet literacy skill	390	23.4051	4.8191
WWW literacy skills	390	26.0051	5.2240

Objective 6. Compare overall students' ICT literacy skills per faculty

Faculty wise, students ICT literacy skills was computed and result in Table 15 shows that there is a significant difference in ICT literacy skills of the student in the various faculties with the Faculty of Physical Sciences scoring the highest mean value of 98.7423 while the Faculty of Education scored the least mean value of 86.4198 followed by Faulty of Arts. This result have favoured Faculty of Physical Science students because the faculty consists of computer science with more ICT facilities and so they are more ICT inclined. Chete, Oruoghor and Chete (2008)

supported this result that Physical Sciences undergraduates are highly ICT literate and use the Internet and World Wide Web for academic research purpose and e-mail in UNIBEN.

Table 15: Descriptive statistics of faculty based students' ICT literacy skills

Faculty	Mean	Std. Deviation	N
Physical science	98.7423	19.0746	97
Law	95.0093	18.5251	107
Arts	93.2143	19.8874	28
Education	86.4198	20.1661	81
Life science	94.2727	17.8787	77
Total	93.8795	19.3582	390

Ho 6:   There is no significant difference in the students' ICT literacy skills per faculty

To confirm if the differences obtained above is significant, data in Table 15 was further analyses. Result in Table 16 shows that there is a significant difference in the students' ICT literacy skills based on their faculty ($F_{(4,385)}=4.827$, $P<.05$). The null hypothesis is rejected. Adetimirin (2012) found similar result that there is a significant difference in ICT literacy skills among Nigerian universities undergraduates per faculty. Therefore, instructors in charge of Faculties of Education and Arts should note this deficiency and place more emphasis in this regard.

Table 16: Correlation analysis of students' ICT literacy skill per faculty.

Source of variation	Sum of square	DF	Mean square	F	Sig.
Faculty	6962.073	4	1740.518	4.827	.001
Error	138811.263	385	360.549		
Total	145773.336	389			

Objective 7: Determine the level of UNIBEN students' ICT literacy skills by gender.

ICT literacy skills of students can be affected by gender differences. Data in Table 17 showed that ICT literacy skills of male students (mean = 96.664) is higher than that of the female (Mean = 91.6667). Bassi and Camble (2011) obtained similar result in university libraries in Adamawa State of Nigeria where male students had more ICT literacy skills than their female counterpart.

Ho 7: There is no significant difference in ICT literacy skills of male and female students

To verify if ICT literacy skills of male and female students is evenly distributed, ICT literacy skills of the students were computed. Result in Table 17 revealed that there is a significant difference in ICT literacy skills of male and female respondents (Crit-t = 1.96, Cal.t = 2.533, DF = 388, P < .05 level of significance). Male students are more ICT literate compared to their female counterpart. The null hypothesis is therefore rejected.

Table 17: Comparison of male and female ICT literacy skills

ICT Literacy skills	N	Mean	Std. Dev.	Crit-t	Cal-t.	DF	P
Male	174	96.6264	20.3579				
				1.96	2.533	388	.012
Female	216	91.6667	18.2622				

Ho 8: There is no significant relationship between gender and students' ICT literacy skills

Relating gender with students' ICT literacy skill, result in Table 18 indicates that there is a negative significant relationship between gender and students' ICT literacy skills (r = -.128*, N=

390, P < .05). Therefore, gender negatively influenced students' ICT literacy skills. The null hypothesis is rejected. This result contrasts Ojeniyi and Adetimirin (2013) finding that gender positively correlates with ICT use among undergraduates of Lead City University and University of Ibadan.

Table 18: Relationship of gender to students' ICT literacy skills

Variable	Mean	Std. Dev.	N	R	P	Remark
ICT Literary skill	93.8795	19.3582				
			390	-.128*	.012	Sig.
Gender	01.5500	0.5000				

* Sig. at .05 level

Objective 8: Assess students' ICT literacy skills per secondary school attended
Secondary school attended can affect students ICT literacy level. Result in Table 19 revealed that first year students who attended private secondary school are more ICT literate (mean = 94.7520) than those who attended public secondary school (mean = 92.3214).

Ho 9: There is no significant difference in ICT literacy skills of students per secondary school attended.
However, comparative analysis Table 19 showed that there is no significant difference between the ICT literacy skills of students who attended private and those who attended public schools (Crit-t = 1.96, Cal.t =1.190, DF = 388, P > .05 level of significance). The null hypothesis is therefore accepted. It means that both private and public schools are not different in imparting ICT literacy skills on their students. There is no comparative advantage as expected.

Table 19: Comparative analysis of ICT literacy skill of students per secondary school attended.

ICT Literacy skills	N	Mean	Std. Dev.	Crit-t	Cal-t.	DF	P
Private school	250	94.7520	1 9.7125				
				1.96	1.190	388	.235
Public school	140	92.3214	18.6768				

Ho 10: There is no significant relationship of secondary school attended to students' ICT literacy skills.

On the overall relationship between secondary school attended and students' ICT literacy skill, result in Table 20 revealed that there is no significant relationship between secondary school attended and students' ICT literacy skills (r = -.060, N= 390, P > .05). Secondary school attended has no influence on students ICT literacy skills in this study. The null hypothesis is accepted.

Table 20: Relationship of secondary school attended to students ICT literacy skills

Variable	Mean	Std. Dev.	N	R	P	Remark
ICT literacy skill	93.8795	19.3582				
			390	-.060	.235	n.s.
Secondary school attended	01.3600	0.4800				

Objective 9: Determine the level of students' perception of class instruction-GST 111.

Students' perception of class instruction received was assessed using seven questions. The result obtained in Table 21 shows that all the items were significantly perceived by all the students with an overall mean of 23.4795. The least score was 2.94 above the acceptable mean of 2.50. It shows that the class instruction imparted on the students in several way. It goes to show that the content of instruction and method adopted by the instructor were adequate and effective. This result is in agreement with Esse (2014) finding that users' education adopted by some university libraries in Southern Nigeria is effective and encouraging.

Table 21: Mean perception of UNIBEN fresher's on library instructions received

S/N	Library instruction	SD	D	A	SA	Mean	S.D
1	Library instruction/GST is important and useful in learning how to use the library	17 4.4%	5 1.3%	63 16.2%	305 78.2%	3.68	0.71
2	Librarian can teach me a lot about the library and ICT	15 3.8%	6 1.5%	96 24.6%	273 70.0%	3.61	0.71
3	I would benefit from a class about library research	16 4.1%	10 2.6%	94 24.1%	270 69.2%	3.58	0.74
4	Library instruction should be encouraged and regular	18 4.6%	9 2.3%	116 29.7%	247 63.3%	3.52	0.76
5	The mode of instruction is easy to understand	21 5.4%	64 16.4%	168 43.1%	137 35.1%	3.08	0.85
6	I learnt how to find and use various library information resources effectively	29 7.4%	67 17.2%	142 36.4%	152 39.0%	3.07	0.93
7	The course was very stimulating	49 12.6%	59 15.1%	149 38.2%	133 34.1%	2.94	1.00

Ho 11: There is no significant relationship between class instruction and students' ICT literacy skills

Relating students' ICT literacy skill to class instruction received, result in Table 22 shows that there is a significant relationship between students' ICT literacy skills and class instruction received (r = .229**, N= 390, P < .01). Therefore, class instruction received influenced students' ICT literacy skills. The null hypothesis is rejected. Therefore, class instruction (GST 111 – use of library) should be taken seriously in UNIBEN due to the attendant benefits from the course. At the University of New Brunswick, Canada, Buhay, Best and McGuire (2010) obtained similar findings which positively suggest that library instruction actually does improve undergraduate students' general knowledge and literacy skills about academic research.

Table 22: Relationship between class instruction and students' ICT literacy skills

Variable	Mean	Std. Dev.	N	R	P	Remark
ICT Literacy skill	93.8795	19.3582	390	.229**	.000	Sig.
Class instruction	23.4795	4.2145				

** Sig. at .01 level

Objective 10: Assess the categories of students' ICT literacy expertise.

Students were asked to rate their level of ICT literacy expertise. Results in Table 23 revealed that 35.4% are novice, 41.5% skillful and 23.1% belong to expert group meaning that majority of the students are ICT literate and skillful. This result further affirms earlier finding in Table 14 that ICT literacy skills of the students are high thus the aim of the class instruction has been achieved.

Similar result obtained by Sinha (2012) at Assam University, India indicates that 22% of the respondents are novice, 56% skilful and 22% belong to expert group.

Table 23: Categories of students' ICT literacy expertise

Subject	Frequency	Percent
Novice	138	35.4
Skillful	162	41.5
Expert	90	23.1
Total	390	100.00

Conclusion

From the data collected and analysed in this study, it is concluded that the class instruction (GST 111 – use of library) is the main predictor of UNIBEN first year students ICT literacy skills and the class instruction received influenced their ICT literacy skills. Consequently, majority of the students now belong to skillful and expert ICT literate groups. Class instruction received impacted on the students differently in the faculties. Gender and secondary school attended did not relate to the students' ICT literacy skills. The content of class instruction (GST 111 - use of library) programme and method of instruction in UNIBEN are therefore effective and adequate.

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