Part-Time Undergraduate Nursing Students' Perception and Attitude to ICT Supports for Distance Education in Nursing in Nigeria

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ABSTRACT

The increase in demand for university education remains unmet especially in developing countries; this has made adoption of distance education imperative in our educational system. Information and Communications Technology (ICT) has been identified as a tool for improving education quality especially in developing countries. The study examined attitudes and perceptions of nursing students toward using Information and Communications Technology supports in distance education. A researchers-designed and validated questionnaire with alpha coefficient of .82 was administered to 396 students of the Department of Nursing Science, Obafemi Awolowo University, Ile-Ife, Nigeria out of which 305 (70%) were returned. Findings of the study revealed that the majority of the nurses (83.3%) had never attended any online computer based training program, a majority (63.9%) had no formal computer training and do not possess personal computers, while 74.4% reported positive perception and attitudes toward using ICT supports in distance education. Lack of constant internet access was rated by the respondents (29.8%) as a major challenge to e-learning support. Gender and years of working experience had no significant influence on respondents' attitudes and perceptions toward ICT supports.

Keywords: *Distance Education, Information and Communications Technology supports, Open Distance Learning, Computer skills in nursing.*

INTRODUCTION

According to Ilusiyan and Oyebade (2008), enrolment rates in African tertiary institutions trail those of other continents. More than 200 million adults in Africa are illiterate (33% of the adult population), with gross enrolment in sub-Saharan Africa being 73.1 per cent for primary school level, 23.1 per cent for secondary school, and only 3.3 per cent of 18 to 25-year-olds enrolling at tertiary level (Agyeman & Dadzie, 2010). Ilusiyan and Oyebade (2008) argued that while the United Nations expected African nations to increase their enrolment rates and university output, Nigeria is facing a paradox where increased demand for university education remains unmet, hence the challenge to adopt other modes of education to guarantee better access to university education.

Worldwide, distance learning is a growing phenomenon in higher education in the 21st century. According to Agyeman and Dadzie (2010), different countries have their peculiar reasons for adopting distance education. Among these are the need to provide opportunity for learners sidelined by the conventional education system who thus would benefit from the Open University (OU) system, and providing opportunity for learners to benefit from external studies developed outside the geographical and demographical peculiarities of such countries (Agyeman & Dadzie, 2010; Ogidan, 2010). In Nigeria, for example, distance education has been adopted to circumvent the vacuum created by inadequate formal

education systems. According to Olusola and Alaba (2011), Distance Education is a sure recipe to resolve the challenge of providing equitable access to quality education to the majority of qualified and interested persons (adults and youths) in Nigeria.

Using information and communications technology (ICT) in distance education has been described as a way to meet the goal of 'Education for All' (EFA) by 2015. Olusola and Alaba (2011) posit that one effective way to achieve the Millennium Development Goals (MDGs) related to education by the year 2015 is through the open and distance learning using technologically enhanced instruction**.** Nursing education, especially with the emerging trends in ICT has the potential to grow substantially over the next decades if nursing schools and training institutions can seek students from all walks of life through ICT driven distance learning programs.

The impact of ICT on every aspect of society seems inevitable and irreversible and nursing education cannot afford to remain static. According to Curtis et al. (2002), ICT is all pervasive such that almost our entire lives including economy, entertainment and quality of life depend on it. ICT has been identified as a vehicle for improving educational system quality and efficiency in developed and developing countries (Nwosu & Ogbomo, 2011). ICT has transformed medical education and practice in the last couple of decades (Houshyari, Bahadorani, Tootoonchi, Gardiner, Peña & Adibi, 2012). Medical schools around the world, especially in industrialized countries, have invested heavily in new computer technologies or are in the process of adapting to this technological revolution (Agyeman & Dadzie, 2010). This is not surprising given that ICT is often perceived as a catalyst for change in teaching styles, learning approaches and access to information (Khan, et al., 2011; Mikre, 2011).

Use of ICT has changed our conventional ways of learning and forced the need to rethink education (White, 2010). ICT can be used to find, develop, analyze and present information as well as to model situations and solve problems. It enables rapid access to ideas and experiences from a wide range of people, communities and cultures, and allows students to collaborate and exchange information on a wider scale. Idowu et al. (2003) defined ICT as one of the driving forces of globalization. To catch up with the rest of the world, the nursing profession in developing countries must research their options, design the necessary processes, and implement essential changes in adapting to the new broad spectrum of communication technologies. The purpose of this research therefore, was to examine nurses' perception and attitude toward using ICT in Distance Education.

Research questions

The following questions were answered in this study:

1. What are the self-reported experiences of nurses concerning their personal and professional use of computers?
2. What is the perception of student nurses concerning the use of ICT supports in Distance Education?
3. What is the student nurses' attitude toward using ICT supports in Distance Education?
4. What challenges do student nurses face in using ICT supports in Distance Education?

Research hypotheses

The following hypotheses were tested in the study:

H_{01}: There is no significant difference in the perception of male and female student nurses concerning the use of ICT supports in Distance Education.

H_{02}: There is no significant difference in the perception of student nurses concerning the use of ICT supports in Distance Education based on years of working experience.

H_{03}: There is no significant difference in the attitude of male and female student nurses concerning the use of ICT supports in Distance Education.

H_{04}: There is no significant difference in the attitude of male and female student nurses concerning the use of ICT supports in Distance Education based on years of working experience.

METHODOLOGY

This is a descriptive research of the survey type; this design was adopted based on the purpose of the study which aimed at investigating nursing students' perception and attitude toward ICT supports. The research design allows for data collection across a larger sample which in turn aids generalization of research findings. A questionnaire constructed by the researchers after rigorous and extensive literature search was used to gather data in the study. The instrument titled Nursing Students' Attitude and Perception Questionnaire (NSAPQ) was divided into three sections. Section A covers questions on respondents' demographics; section B drew upon students' knowledge of ICT, while section C elicited students' perception and attitude toward ICT support in distance education. To validate the instrument, it was pre-tested on 40 selected students sharing similar characteristics with the target population but who were not involved in the actual study. The results were analyzed and a Cronbach's alpha reliability coefficient of .82 was achieved.

Because of the population size, all BNSc part-time nursing students from Part 1 to 4 (396 in total) enrolled at the Department of Nursing Science, Obafemi Awolowo University, Ile-Ife, Nigeria were involved in the study. At the time of this study, the BNSc part-time nursing program was just in its fifth year and preparations were already advanced in making the program purely online based. Out of 396 BNSc part-time nursing students, only 305 actually participated in the study, representing a 70% response rate. All subjects were undertaking a five-year BNSc program in Nursing and are qualified nurses registered with the Nursing and Midwifery Council of Nigeria.

The respondents were visited at different times in their lecture halls during the semester; after being given proper briefing about the purpose of the research and informed of their rights not to participate, the respondents were then assured of the confidentiality of their responses. Then the researchers and two assistants administered the instrument and retrieved the responses immediately after completion. All subjects' responses were precoded to facilitate data entry into an Excel spreadsheet and then uploaded onto SPSS version 19.0 after error correction. Specifically, research questions one to four were answered with frequency counts and percentages while hypotheses one and three were tested with independent *t*-test. Similarly, hypotheses two and four were tested with Analysis of Variance (ANOVA).

RESULTS

Table 1 presents the demographic characteristics of the sample.

As seen in Table 1, the respondents numbered 305 (74%) with the majority being female (85.2%). Some 206 (67.5%) of the respondents were 21-30 years old while 21(6.9%) were between 41-50 years. The majority of the respondents were in the nursing officer professional cadre (80.7%) while 4.9% belonged to the chief nursing officer's cadre. Also, 70.8% of the respondents reported that they have between 0-5 years' experience while 13.1% have worked for more than 11 years.

Table 1. Socio-demographic characteristics of the Nurses

Variables	N(%)	X(*SD*)	Range
Age categories(yrs.)	305	29.5 (5.869)	22-48
21-30	206 (67.5)		
31-40	78 (25.6)		
41-50	21 (6.9)		
Sex			
Male	45 (14.8)		
Female	260 (85.2)		
Professional Designation			
Nursing Officer	246 (80.7)		
Senior Nursing Officer	44 (14.4)		
Chief Nursing Officer	15 (4.9)		
Years of Work Experience		5.09 (4.773)	1-24
0-5	216 (70.8)		
6-10	49 (16.1)		
>11	40 (13.1)		

Research question 1: What are the self-reported experiences of student nurses concerning their personal and professional use of computers?

In this section, respondents were asked to rate their level of computer skill based on a five-point Likert scale (Poor, Fair, Good, Very good, Excellent). Table 2 shows the responses for experience in using ICT supports among the respondents.

Table 2. Distribution of respondents by experience with the use of Information and Communication Technology supports

Variables	Frequency	%
How skillful are you in the use of computer?		
Poor	24	7.9
Fair	143	46.9
Good	103	33.8
Very good	31	10.2
Excellent	4	1.3
How often do you surf the internet?		
Everyday	11	3.6
Twice a week	15	4.9
Weekly	37	12.1
Sometimes	213	69.8
Not at all	29	9.5
Do you have a personal computer or laptop?		
Yes	87	28.5
No	218	71.5
Have you had any formal computer training with certificate?		

Variables	Frequency	%
Yes	110	36.1
No	195	63.9
Have you ever been engaged in any online computer based training programme?		
Yes	36	11.8
No	254	83.3
Which of these applications software can you use very well?		
Microsoft word	168	55.1
Microsoft Excel	9	3.0
Microsoft power point	7	2.3
None	64	21.0
Others	15	4.9

Result indicated that few respondents reported having Excellent skill in using ICT (1.3%), 143 (46.9%, n = 305) reported fair skill, 103 (33.8%) reported good skill and 24 (7.9%) reported poor skill with computers. In response to the question on frequency of internet surfing, only 11 (3.6%) of the sample surf the internet daily, the majority (69.8%) surf the internet sometimes, while 29 respondents (9.5%) reported they do not surf the internet at all.

On personal computer or laptop ownership, most reported that they do not possess personal computers or laptops (71.5%), while only 28.5% reported having personal computers or laptops. Some 195 (63.9%) of them had no formal computer training while 110 (36.1%) had some formal computer training. An overwhelming majority (83.3%) of the nurses had never been engaged in any on-line computer based training program while a few respondents (11.8%) reported previous involvement in such training programs.

The respondents were also asked to indicate computer application software that they can use very well. Results revealed that more than half of the nurses can use Microsoft Word (55.1%), only 7 (2.3%) can use Microsoft PowerPoint presentation software and 64 (21.0%) cannot use any computer application software very well.

Research question 2: What is the perception of student nurses concerning the use of ICT supports in Distance Education?

A five-point Likert scale ranging from strongly disagree to strongly agree was used to assess how nurses perceived the use of ICT supports in Distance Education. Respondents were asked to indicate their degree of agreement with the statements. Respondents were then grouped into three categories (Strongly Agree/ Agree, Undecided, and Disagree/ Strongly Disagree). Table 3 displays the results for perception of student nurses concerning the use of ICT supports in Distance Education

Table 3. Distribution of respondents' perception of the use of ICT supports in distance education

Variables	Strongly Agree/ Agree f (%)	Undecided f (%)	Disagree/ Strongly Disagree f (%)
All students must be ICT compliant	292 (95.7)	13 (4.3)	0 (0)
Laptop support scheme with affordable payment plan should be provided for students	279 (91.5)	24 (7.9)	2 (0.7)
Application of e-learning in Part-Time Nursing program will improve students performances and professional competence	254 (83.3)	26 (8.5)	25 (8.2)
Online e-learning program will save students travel time and expenses	269 (89.1)	22 (7.2)	11 (3.6)
e-learning study centre should be established in students' neighboring states with provision of student support services	262 (85.9)	26 (8.5)	17 (5.6)

Results revealed that 95.7% of respondents reported that they strongly agree/ agree that all students embarking on distance education must be ICT compliant while the remaining 13 (4.3%) were undecided. The majority of respondents, 279 (91.5%) Strongly Agree/ Agree that Laptop support scheme with affordable payment plan should be provided for students, while only 2 (0.7%) Disagree/ strongly disagree with this statement.

For the item *Application of e-learning in Part-Time Nursing program will improve students' performances and professional competence,* majority of respondents, 254 (83.3%) strongly agree/ agree with this statement. Only 25 (8.2%) respondents disagree/ strongly disagree. Some 269 (89.1%) respondents strongly agree/ agree that online e-learning program will save students travel time and expenses, 11 (3.6%) disagree/ strongly disagree with this assertion.

Most respondents strongly agree/agree (262 or 85.9%) that *E-learning study centre should be established in students' neighbouring states with provision of student support services,* while 17 (5.6%) disagree/ strongly disagree with this statement.

Research question 3: What is the student nurses' attitude toward the use of ICT supports in Distance Education?

Table 4 gives the distribution for the variable student nurses' attitude to using ICT supports in distance education.

Table 4. Statistical distribution of respondents' attitudes to the use of ICT supports in Distance Education

Variables	Strongly Agree/ Agree f (%)	Undecided f (%)	Disagree/ Strongly Disagree f (%)
Online e-learning will not help students in the Part-Time Nursing program	62 (20.3)	81 (26.5)	162 (53.1)
Face to face lectures enhance students understanding than virtual online classroom	245 (80.3)	25 (8.2)	35 (11.5)
Application of e-learning in Part-Time Nursing program will be an extra burden of stress and expenses for students	86 (28.2)	81 (26.5)	138 (45.3)
Application of online computer based training will help fill the gap of personnel shortage in Nursing Education	195 (63.9)	72 (23.6)	38 (12.5)
e-Learning supports will improve the quality of content and delivery of Nursing Education	227 (74.4)	41 (13.4)	37 (12.1)
Application of online computer based training will produce computer- dependent dummy nurses	106 (34.8)	60 (19.7)	139 (45.6)

A five-point Likert scale ranging from strongly disagree to strongly agree was used to assess the perception of the use of ICT supports in Distance Education. This scale contained both positive and negative statements which were presented in mixed order. Respondents were asked to indicate their degree of agreement with the statements. They were then grouped into three categories (Strongly Agree/ Agree, Undecided, and Disagree/ Strongly Disagree).

Results revealed that 162 (53.1%) of respondents reported that they strongly disagreed/ disagreed that Online e-learning will not help students in the Part-Time Nursing program, 62 (20.3%) were undecided while the remaining 62 (20.3%) agreed/ strongly agreed with the statement. The majority of respondents, 245 (80.3) however agreed/ strongly agreed that face to face lectures enhance student understanding than virtual online classroom and only 35 (11.5%) Strongly disagreed/ disagreed with this statement.

Application of e-learning in Part-Time Nursing program will be an extra burden of stress and expenses for students. Close to half of respondents, 138 (45.3%) Strongly disagreed/ agreed with this statement. Only 86 (28.2%) respondents agreed/ strongly agreed with this. A total of 195 (63.9%) respondents strongly agreed/ agreed that *application of online computer based training will help fill the gap of personnel shortage in Nursing Education*, while only 38 (12.5%) respondents disagreed/ strongly disagreed with this assertion.

For *E-learning supports will improve the quality of content and delivery of Nursing Education, most respondents* or 227 (74.4%) Strongly agreed/ agreed while 37 (12.1%) disagreed/ strongly disagreed with this statement. When asked to comment on the statement *application of online computer based training will produce computer- dependent dummy nurses,* the result revealed that 139 (45.6%) respondents strongly disagreed/ disagreed. However, a sizeable number of respondents or 106 (34.8%) agreed/ strongly agreed while the remaining 60 (19.7%) were undecided.

Research question 4: What challenges do student nurses face in the course of using ICT supports in Distance Education?

Figure 1 represents the responses for the challenges faced by nurses in the course of using ICT supports in distance education.

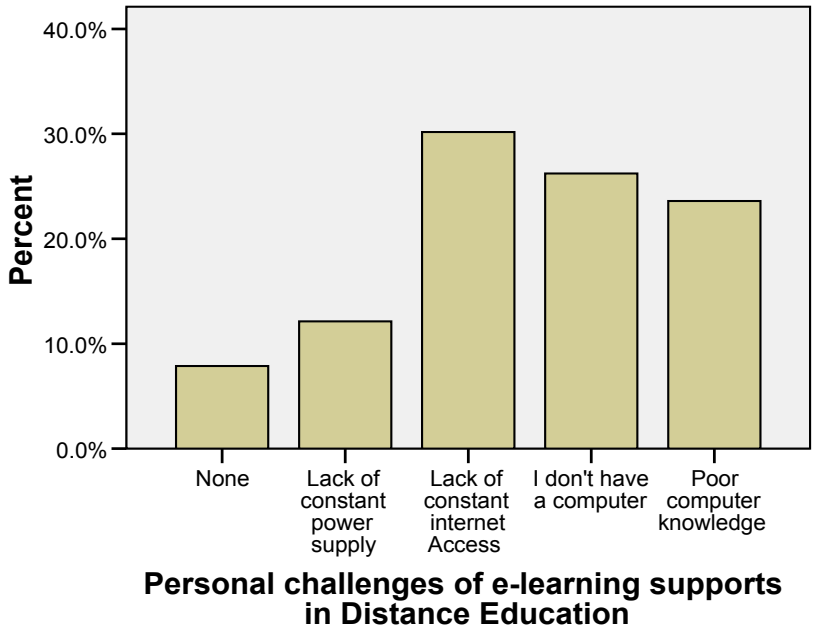

Figure 1: Challenges to application of ICT supports in nursing distance education program.

The personal challenges of the respondents in applying ICT supports in Nursing Distance Education were explored. The results as shown in Figure 1 revealed that 91 (29.8%) of respondents identified lack of constant internet access as a personal challenge, 80 (28.2%) cited lack of a personal computer as their main challenge. This was closely followed by those who reported poor computer knowledge (23.6%) as their main challenge. Furthermore, 37 (12.1%) reported lack of constant power supply and the remaining 25 (8.2%) claimed they did not have any personal challenge in the application of ICT supports in Nursing Distance Education.

Hypotheses Testing

H_{01}: There is no significant difference between the perception of male and female student nurses concerning the use of ICT supports in Distance Education.

Table 5. Student Nurses' Perception of ICT Supports in Distance Education Based onGender

Variable	N	X	*SD*	df	*t*	Sig.	Remarks
Male	45	13.64444	1.568954				
				303	-0.8474	0.8013	accepted
Female	260	13.35	2.236187				

Table 5 revealed that there was no significant difference, between the perception of male and female student nurses concerning the use of ICT supports in Distance Education. This was reflected in the result: *t* (303) = -0.8474, *p* >.05. Thus, the null hypothesis was accepted. This implies that there was no significant difference between the perception of male and female student nurses about the use of ICT supports in Distance education at the .05 alpha level. The perception of the male student nurses was not different significantly from that of their female counterparts.

H_{02}: There is no significant difference in the perception of student nurses concerning the use of ICT supports in Distance Education based on years of working experience.

Table 6. Student Nurses' Perception of ICT Supports in Distance Education Based on Years of Working Experience

	Sum of Squares	Df	Mean Square	*F*	Sig.	Remarks
Between Groups	.808862	2	.404	0.09	0.9168	accepted
Within Groups	1405.97802	302	4.655			
Total	1406.78689	304				

Table 6 showed that F (2, 302) = 0.09, p >0.05, for student nurses perception concerning the use of ICT supports in Distance Education based on years of working experience. This was found not to be significant, meaning that there was no significant difference in the way student nurses perceived the use of ICT supports in distance education regardless of their years of working experience. Since it was established that there was no significant difference in the student nurses' perception of ICT supports in distance education, therefore the hypothesis was accepted.

H_{03}: There is no significant difference between the attitude of male and female student nurses concerning the use of ICT supports in Distance Education

Table 7. Student Nurses' Attitude to ICT supports in Distance Education Based on Gender

Variable	N	X	*SD*	df	*t*	Sig.	Remarks
Male	45	10.6667	4.351593				
	303	-2.4758	0.9931			accepted	
Female	260	9.088462	4.464777				

From Table 7, it could be deduced that there was no significant difference, between the male and female student nurses' attitude to ICT supports in Distance Education. This was reflected in the result: t (303) = -2.4758, p >.05. Thus, the hypothesis was accepted. This implies that there was no significant difference between male and female student nurses' attitude to ICT supports in Distance Education at the 0.05 alpha level. The attitude of male student nurses does not differ significantly from that of their female counterparts.

H_{04}: There is no significant difference in the attitude of student nurses concerning the use of ICT supports in Distance Education based on years of working experience.

Table 8. Student Nurses' Attitude to ICT supports in Distance Education Based on Years of Working Experiences

	Sum of Squares	Df	Mean Square	*F*	Sig.	Remarks
Between Groups	18.9628998	2	9.48144988	0.47	0.6258	accepted
Within Groups	6098.4994	302	20.1937066			
Total	6117.4623	304				

Table 8 revealed F (2, 302) = 0.47, p > 0.05, for student nurses' attitude to ICT supports in Distance Education based on years of experience. This was found not to be significant, meaning that there was no

significant difference in the student nurses' attitude to ICT supports in Distance Education regardless of their year of experience. Since it was established that there was no significant difference in the student nurses' attitude to ICT supports in Distance Education based on years of experience, it implies that student nurses attitude does not differ, therefore the hypothesis was accepted.

CONCLUSION

Discussion of findings

This article has reported on the perception and attitude of part-time Bachelor of Nursing Science Degree Programme students to the use of ICT supports in Distance Education.

Demographics

Nurses in this study were predominantly females (85.2%) and they fall within the age range of 21-30 years (70.8%). These categories of respondents are in the nursing officer cadre and possessed between 0-5 years working experience. This is not surprising considering that younger nurses will probably possess the requisite qualifications for a university degree in nursing education and at same time have the impetus and time for a distance education program.

Research question 1: *What are the self-reported experiences of student nurses concerning their personal and professional use of computers?*

Findings of this study revealed that an overwhelming majority (63.9%) of the nurses had never been engaged in any online computer based training program, the majority of respondents (83.3%) had no formal computer training, while a sizeable number (71.5%) do not possess a personal computer nor laptop. These may probably explain the poor skill with computers and computer application software reported by the respondents. This finding agrees with Ozoemelem (2010) who revealed that low level of skilfulness in the use of ICT is prevalent among Nigerian university students.

The poor ICT experience of the respondents in this study reflects the lack of ICT supports in nursing distance education and is a strong indication of the need to integrate ICTs training into the nursing undergraduate program in Nigeria. Students will have to possess adequate IT competency and have access to adequate IT infrastructure to operate effectively in an IT enhanced learning environment. Given the strong emphasis on eLearning and technology based approaches as the future direction for education, appropriate and adequate computer experience is essential.

Research question 2: *What is the perception of student nurses concerning the use of ICT supports in Distance Education?*

One of the key findings of this study is that the majority of respondents reported positive perception about using ICT supports in Distance Education. Most respondents (95.7%) strongly agreed/agreed that all students embarking on distance education must be ICT compliant. The majority of respondents (83.3%) agreed /strongly agreed that *''Application of e-learning in Part-Time Nursing programme will improve students' performances and professional competence''*. According to Keogh (2003), many students take Open and Distance Learning (ODL) programs because there is no other option available to them because of their life stage, domestic circumstances or location. Limitations such as these which erect further barriers to participation will undermine the pioneering work of ODL in extending access to education to a wide range of the population on a lifelong learning basis.

Research question 3: *What is the student nurses' attitude toward the use of ICT supports in Distance Education?*

A positive relationship exists between perception and attitudes towards the use of ICT supports in Distance Education among the respondents. The results agree with Valasidou and Bousiou-Makridou (2008) which pointed out that students have positive attitudes toward information technology. The study revealed more than half of the respondents strongly disagreed or disagreed that online e-learning will not help students in the part-time nursing program; very few respondents felt that application of e-learning in part-

time nursing program will be an extra burden on the students. The positive attitude reported in this study agrees with the report of Curtis et al. (2002) which also found a positive attitude to computers among nursing students.

However, the majority of respondents agreed or strongly agreed that face to face lectures enhance student understanding than virtual online classroom. It is apparent in this study that most respondents also felt that that applying online computer based training will help fill the gap of personnel shortage in Nursing Education. Most respondents strongly agreed or agreed that E-learning supports will improve the quality of contents and delivery of nursing education.

Research question 4: *What challenges do student nurses face in the course of using ICT supports in Distance Education?*

The personal challenges of the respondents when applying ICT supports in nursing distance education were explored. Major challenges as indicated by respondents include lack of constant internet access (29.8%), lack of a personal computer (28.2%) poor computer knowledge (23.6%) and lack of constant power supply (12.1%).

Hypothesis one: *There is no significant difference between the perception of male and female student nurses concerning the use of ICT supports in Distance Education.*

The perception of student nurses regardless of their gender did not differ; both male and female student nurses perceived ICT supports as that which could have far reaching implications on their academic pursuits. This finding aligned with those of Levett-Jones, Kenny, Van der Riet, Hazelton, Kable, Bourgeois, and Luxford (2009) who had reported no gender influence on perception of student nurses toward ICT. However, it was in contrast to the study of Adeleke, Salami, Achinbee, Anamah, Zakari, and Wasagi (2014) reporting that gender had significant influence on student nurses' perception towards ICT use.

Hypothesis two: *There is no significant difference in the perception of student nurses concerning the use of ICT supports in Distance Education based on years of working experience.*

The number of years of working experience was found to have no significant influence on the perception of respondents. Although the majority of respondents joined the nursing profession less than six years ago and must have had active engagement with digitized learning environments, their perceptions of ICT supports in Distance Education were not significantly different from other respondents who had spent longer years in service and may have not had much interaction with ICT in the earlier stages of their formal education.

Hypothesis three: *There is no significant difference between the attitude of male and female student nurses concerning the use of ICT supports in Distance Education.*

Even though the nursing profession is largely dominated by female practitioners, the attitude of male and female student nurses concerning the use of ICT supports in Distance education were found not be significantly different. This was in consonance with the finding of Kipturgo, Kivuti-Bitok, Kirani, and Muiva (2014) who reported no significant impact of gender on the attitude of nurses toward ICT.

Hypothesis four: *There is no significant difference in the attitude of student nurses concerning the use of ICT supports in Distance Education based on years of working experience.*

The attitudes of the respondents toward ICT supports in Distance Education were not different on the basis of working experience. Although the majority of the student nurses had spent less than six years in the nursing profession, their attitude was not different from those who had spent six years and above. This finding was consistent with the finding of Kipturgo et al. (2014) who reported no significant impact of gender on student nurses' attitude to ICT**.** The finding of this study is however at variance with those of Kivuti and Chepchirchir (2011) who reported significant impact of years of experience on student nurses' attitude toward ICT.

Implications for ODL

Given the essential role of ICT supports in determining the efficiency, effectiveness and sustainability of ODL programs through meeting the goal of 'Education for All' (EFA), which broadly seeks to meet the learning needs of children, youth, and adults by 2015, it is important for ODL programs to initiate and integrate computer training programs into their curriculum and make adequate provisions for other requisite tools that will increase the skill and access of students to ICT supports in such programs.

In order to catch up with the rest of the world, it is also important for ODL programs in developing countries to research their options, design the necessary process, and implement essential changes in adapting to new broad spectrum of communication technologies that will be effective for educational programs in the developing world.

Recommendations

Students will have to possess adequate ICT competency to operate effectively in an ICT enhanced learning environment. They need adequate computer skills, access to ICT support tools and infrastructure and improvement in the ODL delivery mode that will be supportive of efficient performance by the ODL program and in turn have a positive impact on the educational system and outcomes is of paramount importance if the goal of EFA by 2015 are to be guaranteed in the developing countries.

Policy makers in the education sector of developing countries must work with higher institutions with ODL programs to adopt strategies to increase access to and use of information technology particularly in the technology starved rural environments to widen access of all learners to education. Based on the findings of this study, we recommend that:

1. ODL management should encourage potentials students to acquire necessary ICT skills before getting into the program by making it a program prerequisite.
2. Since the student nurses reported positive attitude to ICT supports in ODL, all efforts should be geared towards making maximum use of available ICT platforms to sustain the students' perception.
3. Exercises that can further reinforce student nurses' positive attitude towards ICT supports should also be put in place by ODL management.
4. It is also important for ODL stakeholders to continue to strive towards making cheaper and affordable interment access available to their students to solve the challenge of lack of access as revealed in the study.

Authors' contributions

- Dr Omolola Irinoye was responsible for the conception of this paper, did part of the literature review, provided guide to sequencing of the discussion of findings and also contributed to editing the final paper.
- Mr. Sunday Ayamolowo was responsible for the study design, data gathering and data analysis.
- Mr. Olawale Tijani took responsibility for the literature review with one of the authors, reviewed analyzed data and did the final write-up and discussion of the findings.

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