AWARENESS OF VIRTUAL LEARNING AMONG STUDENTS OF TWO NIGERIAN UNIVERSITIES: CURRICULUM IMPLICATIONS

OLIBIE, Eyiuche Ifeoma (PhD)
Department of Educational Foundations, Faculty of Education
Nnamdi Azikiwe University, Awka. PMB 5025
Anambra State, Nigeria

EZOEM, Maritha Nnonyelum
Department of Secretarial Education,
Federal College of Education (Technical) Asaba Delta State, Nigeria

EKENE, Ugochukwu Stella
Federal Government Girls College, Onitsha
Anambra State, Nigeria

ABSTRACT: *This study investigated the extent of awareness of virtual learning among students in two public universities in Anambra State. Guided by two research questions, a sample of 640 year three students was used. The survey research design was used. A researcher-developed questionnaire titled "Virtual Learning Awareness Questionnaire" (VLAQ) was used to collect data. The findings indicated that a greater percentage of the students were unaware of what constitutes virtual learning and its' benefits. There were also differences between male and female students' awareness of what constitutes virtual learning and its benefits. The findings imply that the students lacked much knowledge of what virtual learning entails and the benefits to their curriculum offerings. Consequently, they are not likely to highly engage in virtual learning to enrich their course curriculum. This could limit their global participation and make them lag behind other students in the international arena. Besides, the extent of awareness was higher for female than male students. There is the implication that this trend would result in gender gap in virtual learning against male students in the future. It was recommended that efforts should be made to improve virtual learning of students and such efforts would need to be targeted at reducing any gender gap and integrating virtual activities in curriculum delivery.*

KEYWORDS: Information and Communication Technology, Virtual Learning, Awareness, Benefits, Curriculum Content, Global Participation.

INTRODUCTION

The Nigerian government has made a commitment to improve the Information and Communications Technology (ICT) skills of its people, and to bridge the digital divide by targeting Nigerian higher institutions (Federal Ministry of Education, 2007). The Federal Republic of Nigeria (2004:53) earlier stated that, "the government shall provide facilities and

necessary infrastructure for the promotion of ICT and e-learning." These commitments are in line with that of the New Partnership for Africa's Development (NEPAD) to achieve a sustainable development in the 21ˢᵗ century. Hence, virtual learning, as a component of ICT ought to be receiving attention in Nigerian universities, which is why this paper investigates the extent to which Nigerian University students are aware of what virtual learning entails as well as its benefits.

LITERATURE REVIEW

There is no single definition of virtual learning since the systems for such learning are continuously evolving and learners are adopting new tools such as blogs and wikis as these emerge on the Internet. Virtual learning is learning that is not confined within the walls of a classroom, but that, which expands the possibility of using internet facilities, platforms, satellite links, and related system to access, analyse, create, exchange, and use data, information, and knowledge in ways which until recently, were almost unimaginable (Lokie, 2011). It involves learning acquired via interaction with digitally delivered content, network-based services and tutoring support often with any type of on-line tool and media including the Internet, intranets, extranets, simulations and games, virtual worlds, clouds, satellite broadcasts, and web platforms (Jarmin, 2010; Schutt & Linegar, 2013; Pelet & Lecarte, 2012). It is carried out through the use and integration of electronic discourses, such as email, portal, downloadable-executable-file, face-book, social networking, web platforms, electronic dissertations and e-portfolios, among others (Bouchard, 2011; Weller, 2010; Wells, de Lange & Fieger, 2008). Mobile learning which is the ability to obtain or provide educational content on personal pocket devices such as PDAs, smart phones and mobile phones, is also a form of virtual learning (Kharbach, 2013).

Virtual learning is carried out through online learning, web-based training and technology delivered instructions in Virtual Learning Environments (VLEs). VLEs are defined as computer-based environments that are relatively open systems, allowing interactions and encounters with other participants and providing access to a wide range of resources (Pelet & Lecarte, 2012).The VLEs provide tools that are customized for education (Downes, 2009; Fournier & Kop, 2011; Merritt, 2009). Sometimes called course management systems (CMS), learning platforms (LP) or learning management systems (LMS), these VLEs are tools that have become increasingly popular for learning in higher educational institutions due to vast growth of internet technology.

Virtual learning is made possible by developments in Information and Communications Technology (ICT) which have been rapid in recent years and have promised improved education and training to an increasingly diverse cohort of students. With the exponential growth of ICT, the higher education environment is expected to have a greater focus on meeting student expectations with more emphasis upon widening students' participation in ICT. The use of ICT in higher education has also necessitated the concern with development of lifelong learning skills, the emergence of new subject disciplines and increased use of technology in learning. The potential for ICT to provide innovative learning approaches such as virtual learning is already being widely explored in both traditional and non-traditional educational settings. Hence, as Crawford and Kirby (2008) noted, the utilisation of relevant virtual learning has never been more

important and should therefore be a significant element of this generation's approach to education, socialising and normalising.

It is generally believed that with the advent of Information and Communications Technology (ICT), virtual learning is among the catalysts that will drive learning. Hence, virtual learning should become an integral part of learning in tertiary institutions. Another rationale for virtual learning could be seen in the fact that the world of the twenty-first century can aptly be called an e-driven world (Oye, A.Lahad, Madar & Ab.Rahim, 2012). E-or virtual technologies have brought profound changes to all facets of life. In order to equip students with the necessary skills and knowledge to foster the growth of independent, creative and lifelong learners, schools should use virtual learning to provide relevant experiences to support and facilitate the students' development.

Virtual learning has been described as an enabling process, which depends on learners' awareness. Awareness refers to knowledge and understanding of the meaning, structure and content of any new technology, like the Internet. It also involves awareness of the potential benefits of using that technology. Awareness empowers people to participate in applying any new technology, designing new tools and having a meaningful role in society's development and consequently, it provides a base for investigating the status of virtual learning among students in universities.

The researcher is motivated to investigate the awareness of virtual learning among university students in Anambra State for several reasons. One of the reasons is to be found in the social craft of learning theory. The social craft theory of learning was developed by Wenger (1998). In that theory, Wenger described learning as a social craft that must be acquired and developed. He stated that the trajectory of how schools should be places for social practices for learning takes a craft orientation to education. He noted that his theory is based on two fundamental crafts: (1) How to develop schools into places where learning (including meta-learning) is their distinguishing perspective, and (2) How to cultivate dispositions, inclinations, and propensities or passions for learning. The basic tenet of Wenger's craft of learning theory is that schools and institutes of learning could and should be the specialists for the social craft of learning. They can be places where learners learn how to learn and where students are taught the crafts of reflecting, interpreting, and dialoguing on their personal epistemologies and ways of learning. Relating this theory to the context of virtual learning, one can see that to acquire the social practice of learning, university students need to see themselves as free agents that can expect to continuously update their skills and knowledge from time to time, depending on their projection of the needs and drivers of the economy through virtual-learning.

Another reason is that many students entered the 21st century with sole exposure to traditional lecture methods of teaching. Soyemi, Oguntuka and Soyemi (2012) remarked that many university lecturers principally teach through traditional lecturer-centered model. Despite the influx of virtual technologies, it appears that many educators do not see distant teaching as effective as traditional methods. Many see virtual universities (VU) as a threat to the higher principles of education, a regressive trend, towards the rather old era of mass-production, standardisation and purely commercial interests (Godvinsamy, 2007, Shahadat, Muhbub &

Clement, 2012). The traditional lecture method, which many lecturers currently use in teaching, is unsuitable for teaching some of the concepts in the curriculum especially in this technology-driven era.

Studies have generally indicated that the use of traditional didactic lectures alone cannot make students to be globally literate and succeed in this information age (Ahmad, 2012; Ravitz, 2006; Wells, de Lange, & Fieger, 2008). As noted by Vallace, Martin, Yokohama & Schaik (2010), research in the informed use of technology for educational purposes highlights the need to go beyond replication of traditional, didactic practices to an appropriation of digital communication (Warschauer, 1999) facilitated by a constructivist pedagogy (Jonassen & Land, 2000) to support purposeful tasks (Martin & Vallance, 2008). New methods of effective teaching and learning, which meet the expectations of the diverse student body and which engage students, should be explored and implemented. Students need to be challenged to become engaged in the 21st century way: electronically.

For any electronic learning technologies such as virtual learning to be effective, students must be aware of what it entails, be motivated and competent to use it. However, due to difficulties of lack of ICT implementation in overcrowded classrooms; insufficient training, lack of learning support materials and support, curriculum overload, lack of clear planning and assessment, and severe pressure on lecturers to increase their research outputs, integration of virtual learning may not be a priority for lecturers (Oye et al., 2012). There is need for students to use virtual learning to complement the efforts of the lecturers and classroom lectures. Goktas, Yildirim and Yildirim (2009) found that when students are motivated to engage in virtual learning, learning interests such students more because they see how acquiring practical skills and learning to solve problems contribute to future success. Teo (2008) also reported that virtual learning support higher order thinking skills in learners through their own constructive thinking. Through virtual learning, students are likely to gain some skills that will allow participation in the global platforms, are very vital for students to stay competitive in the global village.

Awareness of virtual learning among university students would determine to a great extent, if Nigeria could have more independent learners, who are problem solvers and who can contribute positively in improving the way things are done in Nigeria and other nations of the world. Many university students have cell-phones and other digital technologies that are Internet enabled, and many have access to the Internet-enabled computers. Prensky (2001) found that young people of the digital native generation possess sophisticated knowledge of and skills with information technologies. Whether Nigerian students use these facilities, knowledge and skills for virtual learning is yet to be empirically ascertained. However, most of the studies on the status of virtual learning in universities were confined to developed countries like the United States of America, Britain and Australia with very few studies in developing countries like Nigeria (Molia, 2010; Yasemin & Gülbahar, 2013; Zheng, Flygare & Dahl, 2009). As the move towards virtual learning in higher education continues to grow unabated, the more important it becomes to examine the awareness of virtual learning among students.

Research Questions

The study was based on two research questions as follows:

1. What percentages of male and female students in universities in Anambra State are aware of what constitutes virtual learning?

2. What percentages of male and female students in universities in Anambra State are aware of the benefits of virtual learning?

METHODOLOGY

The descriptive survey research design was adopted for this study. A survey research design is used to collect and analyze data from sample of a population in order to determine the current status of that population with respect to one or more variables. This design was appropriate for this study because the study elicited as well as analyzed information from university students with regards to their awareness, motivation, competence and engagement in virtual learning among them.

The entire year three students in the only two public Universities in the Anambra state constituted the population to be studied. These Universities were Nnamdi Azikiwe University Awka, and Anambra State University Uli. Year three students were chosen because they had done the compulsory courses and training in ICT, spent a considerable amount of time in the universities and were in a position to say the extent to which they used virtual learning.

The sample for this study comprised six hundred and forty (640) students. Stratified random sampling technique was used in selecting the students. To do this, students in the two public universities were stratified into their Faculties. Then four faculties were picked from each of the university (total= eight Faculties). From each of selected Faculties, four departments were randomly selected, making a total of 16 departments. Then from each of the selected departments, twenty year three students (10 males and 10 females) were selected through purposive sampling. Hence, the total sample of students was 640 students.

The instrument used in this study was a researcher developed checklist titled – "Students' Virtual Learning Awareness Questionnaire" (SVLAQ). The construction of the checklist was based on information gathered from the literature review. The checklist was divided into two parts. Part 'A' comprised an open-ended question that elicited background information on the respondents' gender (male and female). Part B comprised 23 items separated into 2 sections. Items were on a yes/No. These items investigated the extent of virtual learning awareness of the students.

Percentages were used to answer research questions 1 and 2. To do this, a tally sheet was prepared showing the frequency distribution of the various responses, and then, the percentages of each category of responses was calculated and used to answer the research questions.

RESULTS

Table 1: Frequencies and Percentages of Male and Female Students' Virtual Learning Awareness

Items	Male Students			Female Students		
	F	%	RMK	F	%	RMK
learning through internet simulated tutorials without a physical teacher	190	59.9	LP	198	62.9	LP
reading and sharing information in educational blogs	227	71.6	VLP	241	76.5	VLP
researching for course content information from on-line libraries	230	72.6	VLP	227	72.1	VLP
learning facilitated and supported through the use of information and communications technology (ICT)	174	54.9	LP	179	56.8	LP
downloading essay papers for submission as class assignments	54	17.0	VSP	53	16.8	VSP
participating in online educational project teams requiring passwords	55	17.4	VSP	63	20.0	VSP
pinging with friends about quizzes examinations, and assignments	104	32.8	SP*	94	29.8	SP *
learning through network technologies from cell-phones	86	27.1	VSP	76	24.1	VSP
learning from self-assessed web-modules relating to personal needs	128	40.4	SP	103	32.7	SP
registering courses on portals accessed by keyword search	140	44.2	SP*	155	49.2	SP*
learning through on-line self-paced course contents with inter-linkage support	186	58.7	LP	183	58.1	LP
Average			SP			SP

*Key: RMK=Remarks; * Reverse scored items; VLP=Very Large percentage, LP= Large Percentage; SP= Small percentage, VSP= Very Small Percentage*

Table 1 reveals that a large percentage (over 50 percent) of male students was aware that items 1, 2, 3, 4 and 11 are among the constituents of virtual learning. However, a small percentage of less than 50 percent of the same male students was aware of the constituents of virtual learning depicted in the remaining 6 items. On the other hand, over 50 percent of female students were largely aware of items 1, 2, 3,4 and 11 while less than 50 percent of the same female students were unaware of the remaining 8 constituents of virtual learning. The Table also shows that on the average, only a small percentage comprising 45.07 percent of the male students and 45.36 percent of female students were aware of what constitutes virtual learning.

53

Table 2: Frequencies and Percentages of Male and Female Students' Awareness of Virtual Learning Benefits

Items	Male Students			Female Students		
	F	%	RMK	F	%	RMK
students can easily read, view or listen to online academic programmes through their cell-phones, Mps, and other Internet facilities.	190	59.9	LP	189	60	LP
students can use it to attempt online assignments with instructions and guides from learning platforms	162	51.1	LP	165	52.4	LP
the various interactive tools of VLE can cater for students' individual learning styles	48	15.1	VSP	61	19.4	VSP
it contains hyperlinks information that shows students sites to navigate and read in order to gain indepth course knowledge	164	51.7	LP	172	54.6	LP
it has user comments that enable students to compare different viewpoints from users	177	55.8	LP	193	61.3	LP
it fosters students understanding of the interrelationships of students worldwide	118	37.2	SP	135	42.9	SP
it does not provides a forum for students to copy assignments from other countries and submit as their own	198	62.5	LP	216	68.6	LP
it provides students with access to online lecture notes, sample exams and quizzes in their learning fields	68	21.5	VSP	78	24.8	VSP
it allows students to learn at their own pace within and out of school	153	48.3	SP	186	41.0	SP
it provides academic knowledge in such a fashion that students feel they have no control over the way they learn	62	19.6	VSP*	72	22.9	VSP*
it provides access to open learning environment for criticizing and ridiculing students' contributions	88	27.8	LP*	85	27.0	LP*
it provides opportunities for students to pay other people to write their assignments, term papers or projects	121	38.2	SP*	132	41.9	SP*
Average	129.08				43.	SP

*Key: RMK=Remarks; * Reverse scored items; VLP=Very Large percentage, LP= Large Percentage; SP= Small percentage, VSP= Very Small Percentage*

Table 2 reveals that large percentages (over 50 percent each) of both male and female students were aware that items 12, 13, 15, 16 and 18 are among the benefits of virtual learning. However, less than 50 percent of both the male and female students were aware that the remaining seven items are among the benefits of virtual learning. On the average, only small percentages made up of 40.70 percent of the male students and 43.07 percentages of female students were aware of virtual learning benefits.

DISCUSSION OF FINDINGS

The findings of this study indicated that the level of many of the male and female students' awareness of constituents of virtual learning was poor. This is because the majority of the students were unaware of what constitutes virtual learning. It was found out that the students were mostly aware that reading and sharing information in educational blogs, researching for course content information from on-line libraries and learning through on-line self-paced course contents with inter-linkage support, constitutes virtual learning. However, a greater percentage of the students did not know that learning through internet simulated tutorials without a physical teacher, learning facilitated and supported through the use of information and communications technology (ICT), participating in online educational project teams requiring passwords, learning through network technologies from cell-phones, learning from self-assessed web-modules relating to personal needs and learning through on-line self-paced course contents with inter-linkage support, constitute virtual learning. In other words, a great number of the students were not aware of what constitutes virtual learning. This finding is similar to that of Nbina, Obomanu and Vikoo (2011) who found that students in Rivers State University of Education Port Harcourt have poor knowledge of e-learning.

It was also found out that the percentage of female students that had knowledge of virtual learning marginally exceeded that of the male students. In other words, there was also a surprising incongruence in male and female students' awareness of what constitutes virtual learning. Female students in this study had more knowledge of virtual learning than male students. The finding disagrees with Fabumni (2012) who found that more male students in Ekiti State University had knowledge of e-learning than female students. The findings corroborate that of Craig (1999) who found that female students in European countries were gaining more knowledge of virtual learning and could even overtake males in the nearest feature. Craig's observation that was made in Europe some fourteen years ago appear to be the case here in Anambra State. This is a deviation from the earlier days of computing when research had indicated that men were more positively disposed toward computers than women were. The present study revealed an assumption that gender barriers which had been identified by Achuonye (2011) to hinder the performances of females in ICT, might not be persisting to this present era of information super-highway.

A possible reason for the poor knowledge of virtual learning of both male and female students is students' inadequate exposure to ICT and computer knowledge which are the carriage horses of

virtual learning. Most Nigerian students might not have had much information technology/computer education knowledge because it was not entrenched in the curriculum at their elementary and secondary education level. It was only until recently that computer education was introduced at the elementary, secondary and tertiary levels of the Nigerian education system. Although ICT literacy is now compulsory for lecturers and students in Nigerian tertiary institutions, many institutions appear not to have registered evidence of the potentials of ICTs in transforming students' virtual learning knowledge.

Another explanation could be the inability of lectures to be role virtual learning models because of the low level of virtual learning knowledge among the lecturers. It could also be because the students receive mostly face-to-face lectures and were not exposed to learning experiences in virtual learning whereas researchers showed that for students to have good knowledge of virtual learning, they need action, competition, virtual learning times, virtual learning experiences, role models and hands-on materials. Whatever the reasons could be, the poor knowledge of virtual learning among students is a cause for concern because the knowledge of virtual learning is the key to its use. Where students are not very knowledgeable about virtual learning, it would likely limit their readiness for participation in virtual learning.

The findings of the study have shown that the percentage of students who were aware of the benefits of virtual learning was small. This suggests a general low extent of students' awareness of the benefits of virtual learning. Specifically, out of the thirteen stated items, a majority of the study indicated awareness of only five as follows: students can easily do it by reading, viewing and listening to online academic programmes through their cell-phones, Mps, and other Internet enabled facilities and it helps students to attempt online assignments with instructions and guides from learning platforms. It also contains hyperlinks information that shows students where to navigate to and read in order to develop indepth knowledge of their courses, has user comments that enable students to make connections between different viewpoints and it does not provides a forum for students to copy assignments from other countries and submit as their own assignments. This finding agrees with Fini (2008) who found that virtual learning is considered by some students as being beneficial.

However, many of the students were not aware that the various interactive tools of VLE can cater for the individual learning styles of students; foster students understanding of the interrelationships of other students worldwide as well as provide students with access to online lecture notes, sample exams and quizzes in their learning fields. They were also not aware that virtual learning allows students to learn at their own pace within and out of school, provides academic knowledge in such a fashion that students feel they have no control over the way they learn, and provides access to open learning environment where students could not be ridiculed and criticized while making contributions. This finding deviates from that of Olasina (2012) who reported high awareness of the benefits of e-learning in selected universities in Nigeria. With the low extent of awareness of its benefits found in this study, the stage has not been set for students to maximise the various potentials of virtual learning which the developed countries have been enjoying.

It was also found out that the percentage of females who indicated awareness of the benefits of virtual learning was higher than that of the male students. The finding supports an earlier study that found that female students saw more benefits in the application of virtual learning than males (Boulton, 2013). In contrast, Wells, de Lange, and Fieger (2008) found no significant differences between male and female students as all of their respondents considered virtual learning beneficial to their overall learning experience. Granted that the percentage of female that indicated awareness of the benefits of virtual learning is significantly higher than the males, the general awareness levels of both male and female students was not encouraging. The low level of students' awareness of the benefits of virtual learning could not facilitate their virtual learning as they did not perceive the skills and knowledge gained to be highly beneficial in helping them to be more productive learners.

This finding throws more insight to the earlier finding in respect of research question one where male and female students had low levels of knowledge about virtual learning. Since the students were not highly aware of what constitutes virtual learning, it is only logical that they might not know much about its benefits. Where students did not know enough about the benefits of virtual learning, they might not see many reasons to utilize it to enhance their learning. With the observed extent of awareness, the stage has not really been set for students to maximise the various potentials of virtual learning which the developed countries appeared to have been enjoying.

CURRICULUM IMPLICATIONS OF THE FINDINGS

The findings of the study have some implications for the theory and practice of curriculum and instructional technologies at the tertiary level of education. Theoretically, the level of virtual learning among the students in this study indicates that they may find it difficult to engage in the social practice of learning using technology. In the social practice of learning theory, Wenger (1998) pointed out that to acquire the social practice of learning, university students need to see themselves as free agents that can expect to continuously update their skills and knowledge from time to time, depending on their projection of the needs and drivers of the economy through virtual-learning. By implication, students in Nigerian Universities need to be motivated to tap the benefits of more social and distributed learning using technologies. Learners need to possess dispositions not just to learn, but to learn in socially adaptive and technologically enriched ways such as virtual learning.

Studies have shown that virtual learning provide a number of benefits: making curriculum relevant to the learner; incorporating current research into the curriculum; providing a means to present opportunities to engage students in authentic scientific inquiry; exposure to real world conditions with multiple possible solutions and giving learners real examples of career possibilities (Barker & Ansorge, 2007; Niemitz et al., 2008).

So far in the Universities studied, only a few students were aware of what constitutes virtual learning and its benefits. Many lacked such knowledge. There is the implication that many

students were unaware of the empowering benefits of virtual learning for enriching course curricula, and could not utilize it to facilitate their learning of the specified curriculum content. The Universities have internet facilities and many students have internet mobile phones and other digital technologies, yet the students lacked awareness of the utility of these facilities for learning. Such a situation would limit the students' chances of becoming digital and "active learners, effective collaborators who seek and contribute knowledge, and proficient users of online collaboration tools" (Thornburg, 2002) in Vallance et al, 2009, p 21).There is therefore a need for learning experiences, sensitization and awareness programmes to enlighten students on the various applications and benefits of virtual learning, so that they could see the need to utilize the available facilities for virtual learning to supplement face to face curriculum delivery.

It is well accepted now that supporting learning with virtual technology requires knowledge of its contents and benefits. These were lacking among students in this study. The poor knowledge of virtual learning among students is a cause for concern because the knowledge of virtual learning is the key to its use. There is the implication that where students are not very knowledgeable about virtual learning, it would likely limit their readiness for virtual learning. Students need to be able to key in to the curriculum enrichment possibilities offered by virtual learning. A better understanding of virtual learning environments, embodiment, and benefit would be fostered if lecturers' integrate virtual learning in curriculum delivery, task design processes and outcomes, teaching pedagogies, and measurements of actual learning. Students too need to navigate platforms, participate in peer networking and virtual worlds, to learn more about their course contents, co-curricular options, assess themselves and contribute to discussion boards. These would provide opportunities for learners to take, "a more active role in learning and for tutors to support learning activities in multimodal ways" (deFreitas & Griffiths, 2008, p. 17). Perhaps understanding virtual worlds is especially necessary because, "we increasingly live in a world in which opting out of technology systems is more and more difficult and yet participation within those systems pushes us to accept structures we might oppose" (Taylor, 2006, p. 135).

Although the percentage of students that indicated awareness of some benefits of virtual learning was small, their level of awareness is encouraging. It implies that if the students are to be exposed to virtual learning facilities and experiences, they are likely to benefit from it. It would serve the needs of the students well, if the universities would institute policies, web modules and implementation strategies to expose students to various virtual applications in social networking, curriculum, research and learning.

RECOMMENDATIONS

The following recommendations are made based on the findings:
1. To make the students become increasingly aware of virtual learning, lecturers need to incorporate virtual activities in curriculum delivery, task design processes and outcomes, teaching pedagogies, and measurements of actual learning.

2. Government agencies, University management, or Students' Union Government should organize seminars and conference to intimate students more on the constituents and benefits of virtual learning to their course curriculum.

3. Universities should intensify ICT training for students. They should expose students to a range of co-curricular practical tasks on virtual technologies to help students become more aware and motivated for virtual learning.

4. The Universities should provide adequate, reliable virtual learning platform or software and tools to interconnect all students' and lecturers' for virtual learning.

5. There should be established in every University, a virtual learning support centre to assist students' needs.

6. Students should use self-help efforts such as peer mentoring, advanced computer training through the holidays and reading of digital journals, to become more competent in the use of virtual learning.

7. Government should invest more funds in providing digital technologies to the universities to enhance the ability of the universities to expose students to virtual learning.

8. Students should optimise the use of virtual learning in this information age. Since most of them have access to Internet and mobile devices, they should use them for various virtual learning applications for curriculum enrichment.

CONCLUSION

Virtual learning has emerged as a useful source for promoting learning and preparing youths to participate in a global economy. This study found that only of a few of male and female students in this study were aware of the virtual learning and its benefits. Moreover, the extent of awareness of constituents and benefits of virtual learning of male and female students differed in favour of female students. This implies that more females than males were more knowledgeable about virtual learning and could more likely benefit by engaging in it. It is clear that there are fundamental implications for Universities if this gender gap as well as the poor level of awareness of virtual learning, are not bridged. The question remains how close this gender gap and develop strategies that would make more students aware of the virtual learning and its benefits for learning.

SUGGESTIONS FOR FURTHER RESEARCH

This study is by no means conclusive. In general, the topic of virtual learning is still growing. Hence, the areas suggested for further research are:

1. The study could be expanded to include private Universities in Anambra State.
2. The study could be carried out in other States in Southern Nigeria.
3. A replication of the study in Anambra State to see if any significant differences would exist in virtual learning due to department and socio-economic background.
4. Further, the barriers and enablers in utilization of virtual learning in Universities in Anambra state could be investigated from the perspectives of lecturers and students.

REFERENCES

Achuonye, K. A. (2011). Using computer in science class: The interactive effect of gender. *Journal of African Studies and Development 3*(7), 131-134,

Ahmad, S. A. (2012). Essentialities for e-learning: the Nigerian tertiary institutions in question. *Academic Research International 2*(2),286-291

Barker, S. B., & Ansorge, J. (2007). Robotics as means to increase achievement scores in an informal learning environment. *Journal of Research on Technology in Education*, *39*(3), 229–243.

Bouchard, P. (2011). Network promises and their implications. In *The Impact of Social Networks on Teaching and Learning* [online monograph]. *Revistade Universidad y Sociedad del Conocimiento,8*(1), 288-302.

Boulton, H. (2013). Managing e-Learning: what are the Real Implications for Schools?" *The Electronic Journal of e-Learning 6*(1), 11-18. Retrieved on 11th March 2013 from www.ejel.org

Cornacchione, E. B. (2012) Fidelity and Game-based Technology in Management Education. *Brazilian Administration Review 9(*2),147-167 Retrieved on 14th March 2013 from www.anpad.org.br/bar

Craig, D. V. (1999). A league of their own: Gender, technology, and instructional practices. Atlantic City, New Jersey. *National Educational Computing Conference proceedings*, Atlantic City, NJ.

Crawford, E. & Kirby, M. (2008). Fostering students' global awareness: technology applications in social studies teaching and learning. *Journal of Curriculum and Instruction 2*(1), 56-64.

de Freitas, S., & Griffiths, M. (2008). The convergence of gaming practices with other media forms: what potential for learning? A review of the literature. *Learning, Media And Technology, 33*(1), 11-20.

Downes, S. (2009). *New tools for personal learning.* Paper presented at the MEFANET Conference, Brno, Czech Republic.

Fabunmi, F. A. (2012). Undergraduate students' perception of the effectiveness of ICT use in improving teaching and learning in Ekiti State University, Ado-Ekiti, Nigeria. *International Journal of Library and Information Science 4*(7),121-130, Retrieved on 11th march 2013 from http://www.academicjournals.org/ijlis DOI: 10.5897/IJLIS11.088

Federal Ministry of Education (2007). *Ten-year strategic plan*. Abuja: Federal Ministry of Education.

Federal Republic of Nigeria (2004). *National policy on education (4th ed)* Abuja: Nigeria Educational Research and Development Council (NERDC).Press.

Fini, A. (2008). Attitude of professors and students about virtual learning at colleges in Iran. *Applied Computer & Applied Computational Science, 7*(5) 458-466.

Fournier, H. & Kop, R. (2011). Factors affecting the design and development of a personal learning environment: Research on super-users *International Journal of Virtual and Personal Learning Environments, 2*(4), 12-22

Godvinsamy, M. J. (2007). *Virtual-learning: strategies for delivering knowledge in the digital age.* New York: McGraw-Hill.

Goktas, Y., Yildirim, S., & Yildirim, Z. (2009). Main barriers and possible enablers of ICT integration into pre-service teacher education programs. *Educational Technology & Society, 12*(1), 193–204.

Jarmon, L. (2011). Homo virtualis: Virtual worlds, learning, and an ecology of embodied interaction. *International Journal of Virtual and Personal Learning Environments, 1*(1), 38-56

Jonassen, D. H., & Land, S. M. (2000). *Theoretical foundations of learning environments.* Mahwah, N.J: Lawrence Erlbaum Associates.

Kharbach, M. (2013). *14 technology concepts every teacher should know about*. Retrieved on 24th March 2013 from http:/www.educators technology. co./2013/03/14/14 technology concepts every teacher should know about

Lokie, J. M. (2011). Examining student achievement and motivation using internet-based inquiry in the classroom. *Open Access Theses and Dissertations from the College of Education and Human Sciences.* Paper 102. Retrieved on 4th April 2013 from http://digitalcommons. unl.edu/cehsdiss/102

Martin, S., & Vallance, M. (2008). The impact of synchronous inter-networked teacher training in information and communication technology integration. *Computers & Education*, *51*, 34–53.

Merritt, C. (2009). *The adventures of super-user.* Retrieved from http://hosteddocs.ittoolbox.com/cm120308.pdf

Molia, (2010). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development 47*(4), 47–61.

Mossberger, K., Tolbert, C., & Stansbury, M. (2003). *Virtual inequality: Beyond the digital divide.* Washington D.C., Georgetown University Press.

Nbina, J. B., Obomanu, B. J. & Vikoo, B. (2011). Utilization of information and communication technology for quality instruction in River State University of Education, Port Harcourt: An Assessment. *Journal of Emerging Trends in Educational Research and Policy Studies 2*(1),74– 80.

Niemitz, M., Slough, S., Peart, L., Klaus, A. D., Leckie, R. M., & St. John, K. (2008). Interactive virtual expeditions as a learning tool: The school of rock expedition case study. *Journal of Multimedia and Hypermedia, 17*(4), 561-580.

Olasina, G. (2012). Student's e-Learning/m-Learning Experiences and Impact on Motivation in Nigeria. *Proceedings of the IATUL Conferences*. Paper 31. Retrieved on 18th Feb. 2013 from http://docs.lib.purdue.edu/iatul/2012/papers/31

Oye, N. D., A.Iahad, N., Madar,. & Ab.Rahim, N. (2012). The impact of e-learning on students performance in tertiary institutions. *IRACST – International Journal of Computer Networks and Wireless Communications (IJCNWC) 2* (2),122-130

Pelet,J. E & Lecat, B. (2013) Virtual worlds as the next asset of virtual learning environments for students in business? *International Journal of Virtual and Personal Learning Environments, 3*(2), 59-76

Prensky, M. (2001). *Digital natives, digital immigrants. On the Horizon, 9(5). NCB University Press*. Retrieved from http://www. marcprensky. com/writing/Prensky%20-%20digital%20Natives,%20Digital%20 Immigrants %20-%20 Part1.pdf

Ravitz, D. (2006). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training, *Management Information System Quarterly 25*(4), 401-426.

Schutt, S & Linegar, D. (2013). We learn as we go: What five years playing with virtual worlds has taught us. *International Journal of Virtual and Personal Learning Environments, 4*(2), 124-136

Shahadat,H., Muhbub,H.& Clement, C.(2012). Barriers to the introduction of ICT into education in developing countries: The example of Bangladesh. *International Journal of instruction1*(2), 2-13

Soyemi, J., Ogunyinka, O., & Soyemi, O. B. (2012). Integrating self--paced e-learning with conventional classroom learning in Nigeria Educational System. *Mediterranean Journal of Social Sciences 3*(4),127-133.

Spotts, T.H., Bowman, M. A., Mertz, C. (1997). Gender and use of instructional technologies: A study of University Faculty. *Journal of Higher Education 34*(4), 421-436.

Taylor, T. L. (2006). *Play between worlds: Exploring online game culture*. MIT Press: Cambridge, MA.

Teo, T. (2008). Modelling technology acceptance in education: A study of pre-service teachers. *Computers and Education 52*, 302–312.

Thornburg, D. (2002). *The new basics: Education and the future of work in the telematic age*. Virginia: Association for Supervision and Curriculum Development.

UNESC0 (2007). *Survey of e-learning in Africa; (Based on questionnaire survey of people on the e-learning Africa Database 2007).* London: UNESCO and Royal Holloway University, London.

Vallance, M, Martin, S., Yokohama, C.W., & Schaik, P. (2011) Designing effective spaces, tasks and metrics for communication in second life within the context of programming LEGO NXT Mindstorms™ Robots. *International Journal of Virtual and Personal Learning Environments, 1*(1), 20-37,

Warschauer, M. (1999). *Electronic literacies: Language, culture, and power in online education*. Mahwah, N.J: Lawrence Erlbaum Associates.

Weller, M. (2010). The centralisation dilemma in educational IT. *International Journal of Virtual and Personal Learning Environments*, *1*(1), 1–9.

Wells, P., de Lange, P., & Fieger, P. (2008). Integrating a virtual learning environment into a second-year accounting course: Determinants of overall student perception. *Accounting & Finance 48*(3), 503-518.

Yasemin, G. & Gülbahar, A. (2013). Learning preferences and learning styles of online adult learners. In A. Méndez-Vilas (Ed.). *Education in a technological world: communicating current and emerging research and technological efforts*.(Pp 270-278). Ankara: FORMATEX

Zheng, R. Z., Flygare, J. A. & Dahl, L. B. (2009). Style matching or ability building? An empirical study on learners' learning in well-structured and ill-structured asynchronous online learning environments. *Journal of Educational Computing Research*, 41(2):195-226.