

Full Length Research Paper

Perception of science lecturers and students on the use of facebook in teaching and learning science subjects in Kogi State University, Anyigba. Nigeria.

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Teaching and learning process are necessary pre requisite for any institutional set up. Learners are expected to experience permanent behavioural changes that can be accommodated by any given society. To embark on these two activities, different tools are employed by teachers for the understanding of the various concepts to be learnt. On this premise, the study investigated the perception of science lecturers and students on the use of facebook as a tool for teaching and learning of science subjects in Kogi state university, Anyigba, Nigeria. Four research questions based on the guided the study. Descriptive research design was employed. A total number of 20 lecturers and 332 students in science related courses was surveyed in the study. Science Teachers and Students Facebook Usage Questionnaire (STSFUQ) was developed and used for data collection. The instrument was validated and a reliability index of 0.71 was obtained using Cronbach Alpha. Mean and Standard deviation were used for the analysis of data collected. Findings of the study include that the science teachers do not agree that facebook can be used for teaching and learning, science students think that facebook can be used for teaching and learning and both teachers and students are of the view that the use of facebook may be addictive and can hinder students' discipline. Unsteady power supply and poor internet connectivity affect the use of facebook by teachers and students. Useful recommendations such as provision of functional internet connectivity on campus, and provision of media devices, e.g., computers for science teachers were proffered.

Keywords: Perception, Facebook, Teaching, Learning and Science subjects.

INTRODUCTION

Teaching as an activity has been embarked upon using various methods, techniques and approaches by teacher educators at different levels of our educational level in Nigeria, and the world at large. Through this medium, knowledge, skills, aptitudes and values have been transmitted to the trainee. Acquisition of the attributes has greatly helped in the societal adjustment of the trainee at the end of the training programme. According to Pring in Offorma (2005), teaching is 'the engaging in certain activities which you have grounds to believe will be instrumental in bringing about in another the learning of something that can be characterized as specified.' This definition shows two criteria for teaching: intent and means. Teaching must have an objective and the measures to achieve them. In the context of Education, Akinpelu (1981) defined teaching as 'the deliberate

effort by a mature or experienced person to impart information, knowledge, and so on to an immature or less experienced person through a process that is morally and pedagogically acceptable. This implies that the content has to be worthwhile and the procedure should be educationally acceptable.

Learning on the other hand, is a positive change in behavior. It is the occurrence of new knowledge, skills, ideas, experiences and attitudes in a learner. It is meaningful when a learner acquires new information, values and experiences which facilitate modification of his actions. According to Offorma (2005), learning is facilitated by the encouragement and competency of the teacher. Teaching is the means while learning is the end. This implies that the teacher should be well equipped to manipulate the learning environment for

learning to take place.

The science subjects focused on in this study are the basic sciences like Physics, Chemistry and Biology. Science teaching and learning in Nigerian universities are activities involving the science teachers known as Lecturers and the Students who are the learners. Traditionally, the sciences are studied in the laboratory, where the students are expected to interact with materials and equipment in line with the true nature of science which is experimentation. But observations show that this is not what obtains in Nigerian universities and particularly in the university under study. The lecture method of teaching is excessively used and this method is a teacher – centered approach, involving largely a one – way form of communication, that is, from lecturer to students. The lecturer as the authority figure, does most of the talking (chalk and talk), with the students as mere passive recipients of information, listening and taking down notes and taking few or no questions. As a widely practiced method of instruction, one lecturer can reach a large number of students or audience at a time. A large amount of materials and content can be covered within a short period of time. Its expository nature provides the teacher with a feeling of security as the authority figure. As a fast method of teaching, it is not suitable for slow learners. Slow learners suffer a double penalty in the sense that they must take copious notes; thus, draining their attention into writing rather than learning and later accomplish in private study what they could not do in the group setting. It encourages rote learning and allows little scope for the student to develop an inquiry mind and critical analytical attitude towards his or her learning.

However, Federal Republic of Nigeria in the National Policy on Education (FRN, 2008), stated that the aim of science education is to inculcate in the child, the spirit of inquiry and creativity through the exploration of nature - that education should equip students with skills with which to live effectively in our modern age of science and technology. In line with above objective, the aim of science is to develop in students the ability to think critically in order to make reasonable decisions on issues that concern them, and the society at large. (Gbamanja, 1999).

In the light of the above situation, some science teachers have highlighted the need for the upgrading the current instructional practices in tertiary levels of science education (Salau, 2000).

In this 21st century, society and technology imbue each other and are in mutual dependence, that one cannot survive without the other (Arnó-Macià and Rueda-Ramos, 2011). Technology is ubiquitous, embracing almost every part of human live, communities, and homes. In the field of education, technology doesn't have a secondary role in the sole process of knowledge transfer, especially because technology is becoming increasingly integrated into the lives of learners of all age groups (Ellison, 2008).

In today's information age, students are heavily

immersed in Web 2.0 technologies (i.e., blogs, twitter, podcasts, wikis, social network sites, virtual worlds, video sharing and photo sharing) and Internet, which play an increasingly important role in their social life as well as their academic life (Lego Muñoz, and Towner, 2009). Web 2.0 technologies, and specifically social networking sites such as Facebook, have a very strong influence on the lives of millions of students, thus, leading many educators to wonder what role, if any, social networking could have in education (Thompson, 2007).

Facebook was founded in 2004 and by 2012, was reported to have more than 1 billion registered members, generating 1.6 billion page views each day (Cable News network, 2012). The site was originally designed for college students in the United States but later expanded to different educational settings (not only institutions from the higher education sector) from other countries too, and then to the general public (Hew, 2011). Facebook has quickly become the social network site of choice by college students and has a growing influence among students. Not only are these students registered on facebook, but they are active users. Facebook is used by a majority of undergraduate students on a daily basis – upwards of 90% by some estimates (Selwyn, 2007). These undergraduates use the site in diverse ways to perform a wide range of social tasks such as keeping in touch with high school friends or co – coordinating activities like social events (Selwyn, 2007).

The site is strongly integrated into the daily media practices of its users; a typical user spends an average of 20minutes a day on the site and two- third of the users log in at least once a day (Cassidy 2006). Facebook allows each user to create a profile, updating it with personal information such as home address, mobile phone number, interests, religious views, and even data like relationship status. In addition to creating individual profiles, facebook users can also “designate other users as friends, send private messages,” join groups, post and tag pictures and leave comments on these pictures as well as on either a group's or an individual's wall (Grossecka, Branb and Tiruc, 2011).

Furthermore, facebook enables teachers to provide constructive educational outcomes in a variety of fields (Pempek, 2009); practice a differential pedagogy, in the best interests of the students (Hew, 2011); integrate diagnostic formative evaluation in the learning process and to calibrate didactic activities accordingly (Pasek and Hargittai, 2009). Also, the use of facebook helps to achieve a change in strategy, mentality, attitude and behaviors (e.g. the transfer of knowledge remains one of the functions of teaching, but it is second to organizing and managing learning situations) ; establish efficient educational relations on a social network (Selwyn, 2009); accept the student as an interaction partner (Schwartz, 2009); analyse and compare ways of learning and the knowledge achieved by students (Roblyer, 2010); and to develop knowledge and skills in order to

perform efficient didactic activities (Hew, 2011).

The prominence of social networking sites in the lives of learners has prompted great enthusiasm among some educators. It has been claimed, for instance, that social networking application share many of the desirable qualities of educational technologies because they permit peer feedback. The conversational, collaborative and communal qualities of social networking are felt to be good models of learning, in that they encourage active participatory role for learners (Maloney, 2007). Ajjan and Hartshorne, (2008) and Mason (2006), also found that social network tools like facebook support educational activities by making interaction, collaboration, active participation, information and resource sharing, as well as critical thinking possible. Other characteristics noted in literature which recommend facebook as a tool that can contribute significantly to the quality of education are: fostering positive relationships among students and encompassing students' motivation and engagement (West, Lewis and Currie, 2009; Kabilan, Ahmad and Abidin, 2010); involving students in achieving the learning tasks and successful transfer of knowledge (Madge Meek, Wellens, and Hooley, 2009); developing a positive attitude towards learning and improving the quality of learning (Pasek and Hargittai, 2009; Kirschner and Karpinski, 2010); developing interpersonal intelligence, as well as developing of communications and interactions on the relationship between students and teachers outside the classes (Selwyn, 2009).

In spite of these numerous benefits associated with the use of facebook by the generality of users, its usability in the classroom by science educators and learners in higher institutions is still not ascertained. In addition, few studies to date have examined why or how students use facebook for learning (Kolek and Saunders, 2008).

Based on the above background, the researchers sought to investigate the perception of science lecturers and students in Kogi state university, Anyigba, on the use of facebook in the teaching and learning of science subjects.

Purpose of the study

The main purpose of the study was to survey the perception of science lecturers and students on the use of facebook in teaching and learning science subjects in Kogi state university, Anyigba. Specifically, the study sought to determine;

- 1.the perception of science lecturers on the use of facebook as an instructional tool
- 2.science students' perception on the use of facebook as a learning tool
- 3.the challenges of using facebook as an instructional tool as perceived by science lecturers
- 4.the challenges of using facebook as a learning tool

as perceived by science students

Research questions

The following research questions guided the study;

- 1.What is the perception of science lecturers in Kogi state university, Anyigba on the use of facebook as an instructional tool?
- 2.What is the perception of science students in Kogi state university, Anyigba on the use facebook as a learning tool?
- 3.What are the challenges inherent in the use of facebook as an instructional tool as perceived by science lecturers?
- 4.What are the challenges inherent in the use of facebook as a learning tool as perceived by science students?

METHODOLOGY

The study adopted descriptive survey research design. This design was adopted because it is chiefly concerned with describing events as they are without any manipulations of what caused the event or what is being observed. The population for the study was made up of all the 352 individuals, comprising 332 students (Chemistry; 82, Physics; 78, Biology; 120 and Mathematics; 52) and 20 lecturers (Chemistry; 6, Physics; 5, Biology: 7 and Mathematics; 3) in science education programme at the Kogi state university, Anyigba, in the 2012/13 academic session. The whole population was used for the study as it is within a manageable range. The instrument for data collection was a structured questionnaire titled 'Science Lecturers and Students' Facebook Usage Questionnaire (SLSFUQ), developed by the researchers. The SLSFUQ was a four point rating scale. The scale points include: 4 - Strongly Agree (SA); 3- Agree (A); 2- Disagree (D) and 1- Strongly Disagree (SD), and consisted of 30 items, in 4 sections. The instrument was validated by three experts in Measurement and Evaluation, from the University of Nigeria, Nsukka. Trial testing of the instrument was done using 30 students outside the study area. The reliability of the instrument was determined using Cronbach Alpha procedure. The reliability index was found to be 0.71. The questionnaires were administered to the respondents by the researchers, with the help of research assistants. Completed questionnaires were collected via the same procedure. The research questions were answered using mean and standard deviation.

Decision rule

Using the four point rating scale, a decision rule of 2.50

Table 1: Mean Ratings of Science Lecturers' Perception on the Use of Facebook as an Instructional Tool

S/No		N	Mean	SD	Decision
1.	Having a facebook page for teaching	20	1.90	.85	Disagree
2.	Posting assignments and projects on page	20	1.45	.76	Disagree
3.	Posting tutorial questions	20	1.75	.55	Disagree
4.	As feedback mechanism from students	20	1.70	.47	Disagree
5.	Posting useful links, information and websites for students' use	20	1.95	.83	Disagree
6.	Creating group page for class	20	1.70	.47	Disagree
7.	Posting announcement for upcoming events	20	1.70	.47	Disagree

Table 2: Mean Ratings of Science Students' Perception on the Use of Facebook as a Learning Tool

S/N	Item	N	Mean	SD	Decision
1.	Academic communication with classmates	332	2.99	.92	Agree
2.	Discussion on academic issues	332	3.01	.91	Agree
3.	Sharing resources about coursework	332	2.73	1.05	Agree
4.	Collaboration on assignments and group projects	332	2.74	1.03	Agree
5.	Downloading of applications which support academic purposes of facebook	332	2.93	.99	Agree
6.	Sharing of multimedia on scientific experiments	332	2.65	.99	Agree
7.	Posting of relevant information on group	332	2.95	.99	Agree

was arrived at. This was used to decide the acceptance or rejection of the opinion of the respondents on each of the items of the questionnaire.

RESULTS

The results of the study are as presented below:

Research Question 1

What is the perception of science lecturers in Kogi state university, Anyigba on the use of facebook as an instructional tool?

Table 1 revealed that Science Education lecturers in Kogi state university, Anyigba are not of the opinion that facebook can be used for instructional delivery. This is indicated by the mean ratings which are all below the accepted cut-off of 2.50

Research Question 2

What is the perception of science students in Kogi state university, Anyigba on the use facebook as a learning tool?

Table 2 revealed that the mean rating for each of the

items is above 2.50, being the cut-off.

This shows that facebook can be used as a learning tool, based on the perception of the science students.

Research Question 3

What are the challenges inherent in the use of facebook as an instructional tool as perceived by science lecturers?

Table 3 revealed that all the items listed are challenges of using facebook for instructional delivery, as perceived by the science lecturers.

Research Question 4

What are the challenges inherent in the use of facebook as a learning tool as perceived by science students?

Table 4 revealed that seven out of the ten items had mean rating ranging between 2.51 -3.11, an indication that all the items pose challenges to the use of facebook for learning, as perceived by the students. Also, the students are of the opinion that the use of facebook does not heighten disengagement of learners from education, may have no effects on traditional skills and literacies and does not hinder independent learning.

Table 3: Challenges of Using Facebook as an Instructional Tool as Perceived by Science Lecturers

S/N	Item	N	Mean	SD	Decision
1.	Facebook use can be addictive	20	3.20	.62	Agree
2.	Hinders students' discipline	20	2.90	.85	Agree
3.	Strong attachment to traditional teaching methods	20	3.00	.85	Agree
4.	Techno – phobia	20	3.05	.22	Agree
5.	Unsteady power supply	20	3.85	.49	Agree
6.	Poor internet connectivity	20	3.90	.31	Agree

Table 4: Challenges inherent in the Use of Facebook as a Learning Tool as Perceived by Science Students

S/No	Item	N	Mean	Standard Deviation	Decision
1.	Facebook use can be addictive	332	3.11	.92	Agree
2.	May de-power learners ,i.e., making them lazy	332	2.71	1.00	Agree
3.	Hinders independent learning	332	2.45	.91	Agree
4.	Negatively affects critical thinking	332	2.51	.99	Agree
5.	Heightens disengagement, alienation and disconnection of learners from education	332	2.36	.96	Disagree
6.	May have effects on traditional skills and literacy	332	2.37	1.02	Disagree
7.	High cost of internet access	332	2.61	1.07	Agree
8.	Encourages procrastinating instead of studying or paying attention	332	2.80	.99	Agree
9.	Poor internet connectivity	332	2.88	.97	Agree
10.	Unsteady power supply	332	3.06	.95	Agree

Major Findings

1. Science teachers do not agree that facebook can be used for teaching and learning.
2. Science students think that facebook can be used for teaching and learning.
3. Teachers are of the view that the use of facebook may be addictive, hinder students' discipline and cause techno – phobia.
4. Teachers are also of the view that unsteady power supply and poor internet connectivity pose use of facebook.
5. Students are of the view that the use of facebook does not heighten disengagement of learners and have effect on traditional skills and literacies.
6. Students are also of the view that the use of facebook can be addictive, de – power learners, hinder independent learning, negatively affect critical thinking and encourages procrastination, among others.

DISCUSSION OF FINDINGS

Findings on the perception of the use of facebook as an instructional tool by science lecturers revealed that the teachers do not believe that facebook can be used as an

instructional tool in the teaching of science subjects. The finding agrees with Ifeakor (2005), that teachers generally are glued to the traditional lecture method of teaching and are unwilling to practice a different pedagogy. Ibe (2006) stated that the lecture method is not appropriate for science instruction as it does not engender collaboration, experimentation and the acquisition of the science process skills. Again, it appears problematic for educators to try to formalize facebook use in education, considering students' attitude and the issue of privacy. Also, in the matter of equity, an insignificant number of students may not like to use facebook to support their learning. Contrary to the opinion of science lecturers, the science students are of the opinion that facebook can be used as a learning tool. This finding is in agreement with Aijari and Hartshorne (2008) and Mason (2006), when they found out that social network tools support educational activities by making interaction, resource sharing, and collaboration, among others possible. In resource sharing, the learner can receive useful links and websites which he can visit and gain vicarious scientific experiences.

On the challenges of using facebook in the teaching and learning of science subjects, science lecturers agree that unsteady power supply, poor internet connectivity, techno-phobia, high cost of internet access, among other

factors pose challenges. This is in line with the findings of Okoye (2012) that unsteady power supply is a factor militating against the use of Information and Communication Technology in Nigeria education. Observations show that there is poor internet connectivity in Nigerian universities and particularly the university under focus, and even where internet access is available, the cost of accessing it is high, such that even lecturers cannot sustain its use. Similar challenges are faced by students, but findings revealed that students disagreed with concerns raised by Brabazon (2007), that use of facebook heightens disengagement, alienation and disconnection from education and has detrimental effect on traditional skills and literacy.

Also, both teachers and students agree that facebook use may be addictive and may hinder students' discipline. This is in line with the fears raised by Cassidy (2006), that despite the popular position of social networking as educational tools, some critics think they may distract learners' attention from their studies.

CONCLUSION

In conclusion, the use of Information and Communication Technology (ICT), which facebook is a sub-set, is one of the major contemporary factors shaping the global economy and producing rapid changes in society. ICT has fundamentally changed the way people learn, communicate and do business. They can transform the nature of education – where and how learning takes place and roles of teachers and students in the learning process. In order to compete globally and favourably with their peers, Nigerian undergraduates need to accomplish complex tasks collaboratively and this can be engendered by the use of facebook.

RECOMMENDATIONS

Based on the discussion, the following recommendations are made:

1. Provision of functional and accessible internet connectivity on campus should be given due attention by the university authority with the assistance of the government via subvention grants.
2. Workshop, seminars and conferences on e-learning should be organized for lecturers.
3. Provision of media devices, e.g. laptops and computers for science lecturers should be given priority by their employers with the support of the government.
4. Photos and multimedia items should be properly screened before posting.
5. The university should be connected to the national grid for regular supply of light.

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