EFFECTIVENESS AND ATTITUDE OF STUDENTS TOWARD E-COURSES IN UNIVERSITY OF LAGOS, NIGERIA

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Abstract

E-courses are courses taken by students through the convergence of learning and the internet which involves the use of technology to design, select, administer, and extend learning. E-courses are delivered through electronic media but their effectiveness and students' attitude toward their usage have not been determined at the University of Lagos. Technology Acceptance Model (TAM) guided the study for attitude and effectiveness based on the actual usage of e-courses. This study, therefore, determined the effectiveness and attitude of students towards e-courses at the university of Lagos. The descriptive research design of the survey type was adopted in the study. Two hundred and eighty-six students were randomly selected from Mathematics Education and Science education students from 100-400level of education from the University of Lagos. Researcher-designed instruments were used for the study. Mean and standard deviation was used to answer the two research questions raised. The average mean of 3.16 for effectiveness indicates that students considered e-courses to be effective a mean of 3.18 shows that students have a positive attitude towards e-courses. The study concluded that e-learning is effective, and students are having a positive attitude towards the usage for learning. The study recommended among others that enough facilities should be made available for those handling the e-courses program to ease the online learning via the e-courses.

Keywords: *E-courses, effectiveness, attitude, e-learning, online teaching*

Introduction

The numerical part of human life and their knowledge is calculation, the world is full of calculation, design, and patterns emanating from Mathematics. There is no way to get through a day without applying Mathematics since the world is full of numbers and to handle a series of problems both simple and complex. Mathematical knowledge provides the tools to make life a bit easier. The exact interpretation of man's ideas and conclusions were given through Mathematics. It is an important tool in science and technology, science cannot exist without Mathematics and society is not complete without science and technology. It is the cornerstone to the development of any nation. There is no career or any area of study that has not got one or two things to do with Mathematics. This might be the reason why Ogunleye (2009) emphasizes that good background knowledge in Mathematics enhanced achievement in chemistry. This is not limited to only chemistry, apart from the sciences, Mathematics knowledge is useful and can be applied to arts, social sciences, and others. It cut across every area of study.

Mathematics is essential in quantitative facts and relationships also with space and form problems (Sidhu, 2004, Sidhu 2006). Mathematics also deals with the relationship between magnitudes according to Passolunghi and Lanfranchi, (2012). Mathematics is essential and studies order abstracted from other objects and phenomena, exhibit it, not in a specific but a generalized form (Saleem & Khalid, 2000). Mathematics forms the basis of technology; it is the bedrock upon which technology is being built. The more the development in technology the greater the skill level of Mathematics required. Research indicates that if teachers have a good knowledge and background in Mathematics this will add value to their lessons, this will extensively involve students in mathematical dialogue and capitalize on students' questions and discussions to weave for extension of mathematical relationships. The belief is that anybody that is very good in Mathematics must not find other courses difficult and should be able to handle and solve problems of any kind for it sharpens the brain, improves the reasoning abilities to be able to think critically, reason precisely, and provides exact solution to problems. The world is a global village, and to face the world

challenges, the country needs to give special care and attention to information and communication technology in the user computer accepted universally as criteria and standard for moving forward and rapid development. Mathematics has been the loom upon which the fabric of the universe is being built, the more complex a society is, the more complex mathematical knowledge required.

Since the world has become a global village, the distribution of ideas in every sector especially in education most important scientific, technological, economic, cultural and developments, requested the use of e-resources through Information and Communication Technology (ICT). Information is being shared which gives opportunities to learn, compare and improve the system practice in different countries and to leverage what is learned in each country to improve the teaching and learning of all courses including Mathematics and Sciences. Powerful learning opportunities can be provided by teachers with the use of ICT for students to find information, assess the values of such information, and build on their knowledge. The teaching environment is very important in the teaching and learning process. The use of relevant teaching materials which include information and communication technology drastically changed the learning environment attracts positively the interest of learners and makes learners active during the lesson (Akinoso, 2018). The system of learning is no more limited to face-to-face classroom settings, learning can take place anytime anywhere. Learners can register for e-courses and learn through internet facilities.

At the University of Lagos, there are different sets of learners, regular students, sandwich students, and distance learning students. Distance learning students are allowed to learn through a learning management system that involves interaction via internet communication, that is, their major way of learning is e-learning with e-courses while others experience normal classroom settings at times with blended learning. The major reason for learning is to cause drastic changes in behaviour to become useful in society. One of the importance of learning is the benefits in terms of value for the individual and society. Mathematics is about problem-solving, this includes real-life problems, and any kind of societal problem either simple or complex.

According to Woolfolk (2004), classroom teaching success depends on the degree of interaction between instructors and learners. This learning management system was designed in such a way that teachers and learners can interact with ease. Gupta (2017) reiterates that e-learning makes learning easier, more effective, and simpler, and then gives the features of e-learning as follows:
1. The needs of everyone are accommodated by e-learning.
2. Lectures can be accessed by learners as many times as possible.
3. E-learning offers access to content that has been updated, which allows the learner to equally access updated content.
4. E-learning gives quick delivery of the lesson.
5. New training is created and communicated policies, concepts, and ideas are taken care of through e-learning.
6. Consistency: The message has been communicated in a consistence way and enables a higher degree of coverage.
7. E-learning reduces cost, due to the reduction of time for training concerning trainers' travel, course/learning materials also the issue of accommodation.
8. It is effective in such a way that, there is a positive influence on the profits of organization profits.
9. It has less impact on the environment.

E-learning is convenient and flexible, learners can access learning anywhere and at the learners' convenient time. This gives those who are working and cannot leave their jobs the opportunity to register and add value to their carrier. It is a form of independent learning for part-time students and full-time working learners. The video for instruction can be watched as many times as possible until the learner masters the concepts which gives an advantage over face-to-face classroom learning.

Statement of the Problem

Mathematics is essential in every area of human life and forms the basis of science and technology. It is not every individual that can register and have full-time education. An alternative way of learning can be achieved through e-learning which makes learning possible for every kind of individual that has an interest and wishes to further their education. In this case, consideration is then given to e-courses. This study observed the effectiveness and attitude of learners on e-learning of e-courses at the university of Lagos, Nigeria.

Purpose of the Study

The main purpose of this study is to observe the effectiveness and attitude of students toward e-courses. Specifically, the study:
1. determined the effective e-courses for learning.
2. Examined the attitude towards the use of e-courses for learning.
Research Questions
The following questions were asked to guide the study
1: Do students perceive e-courses to be effective for learning?
2: What is the attitude of students towards the use of e-courses for learning?

Methodology

The study used descriptive research which is of survey type. The population of the study comprised all Mathematics and Science Education (Mainstream and Distance Learning Institute (DLI)) students from the first year to final year level at the University of Lagos, Nigeria. The institution used was purposively selected due to the criteria that the educational programme used was available that is, availability of Mainstream and DLI program and easy accessibility. The sample size consists of two hundred and eighty-sixes students (286) with 134 males and 152 females randomly selected from both mainstream and distance learning Mathematics Education and Science education students from 100-400 level. Researcher-designed instruments were used for the study. The instrument used was a questionnaire on the effectiveness of e-courses (EE) and the attitude of students to e-courses (AE). It was a Likert type of strongly agree, agree, disagrees, and strongly disagree. The instruments were validated for face and content validity by measurement and evaluation experts from the University of Lagos. A reliability coefficient of 0.84 and 0.89 was determined for the instruments using Pearson Moment Correlation Coefficient. The instruments were administered to the students involved and the data collected were analyzed using mean and standard deviation for research questions 1 and 2.

Results

Research Question 1: Do students perceive e-courses to be effective for learning?

Table 1: Effectiveness of E-courses on Students' Learning

	Statement	Mean
1.	The e-course gives all the needed materials for achieving the expected learning results	3.06
2.	The learning materials and activities in the e-course were well organized	3.00
3.	Communicating with the teacher through the e-course is very easy	3.14
4.	Through the e-course, other colleagues from the group can be communicated	3.21
5.	E-course enabled discussion forum than normal class setting	3.08
6.	E-course enables content editing and management of e-course activities regularly by the instructor which has more benefits compared to normal classroom setting	3.19
7.	Through the e-course, one can communicate with other colleagues from the group	3.22
8.	E-course instructors communicate with learners regularly which is of great benefit compared to the normal classroom setting	3.17
9.	Feedback has been received more regularly about my work from the e-course instructor than normal class setting	3.15
10.	E-course must usually provide all the results	3.43
11.	Learning materials in the e-course are written in a clear and understanding manner, colored, and simple	3.27
12.	It is important to me that the learning materials and activities in the e-course are well organized	3.33
13.	It is important to me that multimedia (appropriate audio and video content, animations, computer simulations) is used in the e-course which did not apply to face-to-face learning	3.20
14.	Educational activities such as homework, seminar papers submission, and participating in discussions in the e-course must be conducted online	3.24
15.	Instructors can easily be communicated with through the e-course	2.97
16.	Knowledge can be tested through self-assessment in the ways provided through e-course	3.11
17.	Mandatory and optional study material in digital form is provided through e-course	3.16
18.	The E-course tutor edits content and manages e-course activities more regularly than normal class setting	3.03
19.	The system can be used to communicate with learners regularly and easily through e-course while communication in normal Mathematics and Science classes is not regular	2.97
20.	Feedback is received more regularly about my work from the e-course instructor normal class settings	2.97
21.	E-learning is full of more benefits than normal class settings	3.22
22.	I prefer e-learning to face-to-face class	3.26
23.	Learning is more effective in e-learning classes than face to face classes	3.22
24.	Face-to-face class is time consuming	3.22
25.	For all my courses, I prefer face-to-face class	3.26

The results of table 1 show that the mean of every item on the table is greater than the baseline mean of 2.50. This implies that e-courses are effective according to the opinion of the students. The average mean obtained was 3.16. This implies that e-courses are effective for students learning.

Research Question 2: What is the attitude of students towards the use of e-courses for learning?

Table 2: Students' Attitude towards E-course

S/N	Statements	$\overline{x}$
1	The learning process can be organized better through e-course	3.26
2	I have better results in the combination of online and classroom modes of learning.	3.35
3	I participate more actively in e-courses and complete my assignments more regularly then in normal classroom courses.	3.23
4	Having unlimited access to all materials in e-course is important and useful.	3.32
5	E-course learning materials are more suitable for students' needs.	3.26
6	Discussions in e-course are more successful than in the classroom.	2.98
7	I communicate better with other learners about the learning topics, content and activities through e-course.	2.99
8	Easy communication is provided with an instructor/assistant through e-courses than it is in person.	3.18
9	I found face-to-face contact with my teacher important to encourage the learning process.	3.15
10	I am distracted by other online activities like video games, social networks, and others in e-learning.	3.09
11	The materials sent for learning are just too much and I hardly get time for other activities.	3.13

The results of this table show that students' attitude to e-courses is positive with an average mean score of 3.18. This implies that students are having a positive attitude toward e-learning.

Discussion of Findings

The result of the study showed that e-learning is effective compared to regular classroom learning. The students agreed that the e-course provided the materials needed for achieving the expected results. In learning, activities and materials are well organized, and easy to communicate with the instructors and colleagues. The students also agreed that e-learning enables discussion forums, received feedback regularly, clearly written material, provides knowledge testing through self-assessment, provides mandatory and optional study material in form of digital, saves time, and is full of benefits than a face-to-face class. This shows that e-learning has more advantages when compared to regular or face-to-face learning. This finding supports the findings and conclusion of Somayeh, Dehghani, Mozaffari, Ghasemnegad, Hakimi, and Samaneh (2016), who carried out research on the effectiveness of e-learning in learning and concluded that e-learning has a significant impact on teaching and learning and should be considered. It was suggested that this approach be used more in education which requires building the foundation or ground for another carrier due to its positive effects.

The study was supported by the benefits of e-learning which include the promotion of learning, independence, and individual satisfaction, learning at anytime, anywhere, and regardless of students' background, learning without the same or specific prerequisites, speed and process of learning due to individual needs, individual learning along with cooperative learning, saving time and costs significantly, the possibility of teaching and learning for all people, mutual teaching and learning, receiving quick results in learning, learning more by using multimedia and maintaining resources and reducing environmental and audio pollution. The result negates the opinion of Liu, (2017) who questions the effectiveness of distance education.

On attitude, the students agreed that e-learning helps in organizing the learning process better, achieves better results in the courses, allows active participation, access to materials is unlimited, learning material is more suitable for students, easier communication and the material provided is adequate. The attitude of students to e-learning is favorable according to the results of the study. This is in agreement with the findings of Bertea, (2009) whose study was based on measuring the attitude of students towards e-learning and reported that there is a connection between students' attitude and e-learning and found attitude differences in the case of hired students compared with the unemployed ones, but Zabadi and Al alai (2016) whose study was based on university students' attitudes towards e-Learning reported that attitude is significant to vary with gender, technology usage, and skills.

Conclusion

E-courses are effective for students learning and students have a positive attitude towards e-learning. These e-courses will give learners easy access to learn at their own pace and time.

Recommendations

The following recommendations were made based on the results of this study:

1. The opportunity should be given to those who want to further their education but are finding it difficult to register as full-time students due to the type of job they are involved in.
2. Workshops and conferences should be organized for Mathematics and Science teachers on how to carry out e-learning effectively.
3. Enough materials should be provided for effective teaching of e-courses

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