

Perception of Undergraduate Students on the Utilisation of Flipped Classroom for Learning in South-West Nigeria

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Abstract

The importance of education to mankind cannot be over emphasised, most especially in the critical moment of technological breakthrough. The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. The roles of students have a corresponding change from passive participants to positive participation. Flipped classroom is an instructional strategy which provides a new methodology and modality for teaching and learning, which one-to-one interaction and more cooperative and collaborative contribution to the teaching process which can improve and encourage social interaction, teamwork and cultural diversity among students. This study investigated the perception of undergraduate students to the use of flipped classroom for learning in south-west Nigeria. The findings established that undergraduate students perceived flipped classroom to be useful and easy to use for learning. It was then recommended that stakeholders in education should procure necessary equipment for flipped classroom.

Keywords: flipped classroom, perception, utilisation

Introduction

Background of the Study

The importance of education to mankind cannot be over emphasised, most especially in the critical moment of technological breakthrough. Iloanusi and Osuagwu (2009) defined education as a major tool for national socio-economic growth and development. Their submission agrees with the National Policy on Education (NPE, 2014) which stressed the importance of education as an instrument of change. NPE (2014), affirms the need to make education meet the needs of individual citizens and society at large. Education had been recognised as a fundamental right with far-reaching impacts on human development and social progress. Education is the cornerstone of sustainable development and it contributes to building a modern and thriving society (Idowu and Esere, 2013). Education also empowers communities and citizens to fully participate in development and prosperity. Education in its broadest sense is generally acclaimed as a tool that has a germane impact on the mind, character, or physical ability of an individual (Briggs et al., 2012).

Shavinina (2001) defines Information and Communications Technology (ICT) as all the digital technologies, including: computer, scanner, printer, telephone, internet, digital satellite system (DSS), direct broadcast satellite (DBS), pocket-switching, fiber optic cables, laser disc, microwaves, and multi-media systems for collection, processing, storage and dissemination of information all-over the world. Information and communication technology entails all digital technologies that can be used to facilitate communication and information transmission. When this digital technologies are employed in education to facilitate learning, it enhances teaching and learning rates of the student (Adegbija, Fakomogbon and Adebayo, 2013). As opined by Mindflash (2016) that it is harder to predict how the new distributed, democratised dynamic will change the nature of how or what people are actually learning.

There is a need to use internet in facilitating learning and this brought about the concept of flipped learning. Flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment through delivering instructional content, often online, and

outside of the classroom delivery (Flores, Del-Acro and Silva, 2016). The flipped classroom strategy is responsible for the movement of activities, including those that may have traditionally been considered homework, into the classroom. In a flipped classroom, there are several activities that are embedded. Such include students watching online lectures, collaborate in online discussions, or carry out research at home and engage in concepts in the classroom with the guidance of a mentor.

Flipped learning is a model of teaching in which the more passive learning activities happen outside of the classroom (Scribner, 2019). With flipped classroom, learning becomes an activity performed cooperatively, critically, in participation with others, and online. Lakmal and Dawson (2015) stated that the flipped classroom intentionally shifts instruction to a learner-centered model in which class time explores topics in greater depth and creates meaningful learning opportunities, while educational technologies such as online videos are used to ‘deliver content’ outside of the classroom. In a flipped classroom, ‘content delivery’ may take a variety of forms. Often, video lessons prepared by the teacher or third parties are used to deliver content, although online collaborative discussions, digital research, and text readings may be used.

Brame (2013) noted that the flipped classroom approach has been used for years in some disciplines, notably within the humanities. Flipped classroom is an instructional strategy which provides a new methodology and modality for teaching and learning. Walvoord and Anderson promoted the use of this approach in their book *Effective Grading* (1998). They propose a model in which students gain first-exposure learning prior to class and focus on the processing part of learning (synthesising, analysing, problem-solving, among others) in class. Since Bergmann and Sams (2012) first experimented with the idea in their Colorado classrooms in 2004, flipped learning has exploded onto the larger educational scene (Gutierrez, 2017). The four pillars of FLIP are flexible environment, learning culture, intentional content and professional educator (Flipped Learning Network, 2014).

The flexible environment denotes that flipped learning allows for a variety of learning modes; educators often physically rearrange their learning spaces to accommodate a lesson or unit, to support either group work or independent study. They create flexible spaces in which students choose

when and where they learn. Furthermore, educators who flip their classes are flexible in their expectations of student timelines for learning and in their assessments of student learning. Next is the learning culture. In the traditional teacher-centred model, the teacher is the primary source of information. By contrast, the flipped learning model deliberately shifts instruction to a learner-centred approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities. As a result, students are actively involved in knowledge construction as they participate in and evaluate their learning in a manner that is personally meaningful.

With intentional content as one of the pillars of FLIP, flipped learning educators continually think about how they can use the flipped learning model to help students develop conceptual understanding, as well as procedural fluency. In the flipped classroom context, teachers determine what they need to teach and what materials students should explore on their own thereby facilitating teaching and learning. Educators use intentional content to maximise classroom time in order to adopt methods of student-centred, active learning strategies, depending on grade level and subject matter. Lastly is the professional educator. The role of a professional educator is even more important, and often more demanding, in a flipped classroom than in a traditional one (Flipped Learning Network, 2014). During class, they continually observe their students, providing them with feedback relevant in the moment, and assessing their work. Flipped classroom facilitators are reflective in their practice, connect with each other to improve their instruction, accept constructive criticism, and tolerate controlled chaos in their classrooms. While flipped classroom facilitators take on less visibly prominent roles in a flipped classroom, they remain the essential ingredient that enables flipped learning to occur.

Nowadays, the flipped classroom offers more opportunities for students to develop critical and independent thinking, and for students to enhance their own learning processes by interacting collaboratively with peers (Gutierrez, 2017). The first key element that ensures the success of the process is the development of a well-organised teaching plan, which specifies the activities that will be carried out, as well as the resources and contents that will be consulted (Flores, 2015). In revised Bloom's taxonomy (Anderson et al., 2001), the students are doing the lower levels of cognitive work (gaining

knowledge and comprehension) outside of class, and focusing on the higher forms of cognitive work (application, analysis, synthesis and/or evaluation) in class, where they have the support of their peers and instructor.

Flipped classroom model differs from the traditional model in which first exposure occurs through lecture in class, with students assimilating knowledge through homework. Flipped classroom entails a role change for instructors, with much more instructor-student interaction. The instructor acts as a facilitator and guide, giving personal feedback to individual students, and thus making a more collaborative and cooperative contribution to the teaching process. Bergmann and Sams (2012) opined that the method is believed to have the potential to encourage student learning, because students are actively engaged in the learning process, and also the instructor has more time to interact with students individually or in small groups.

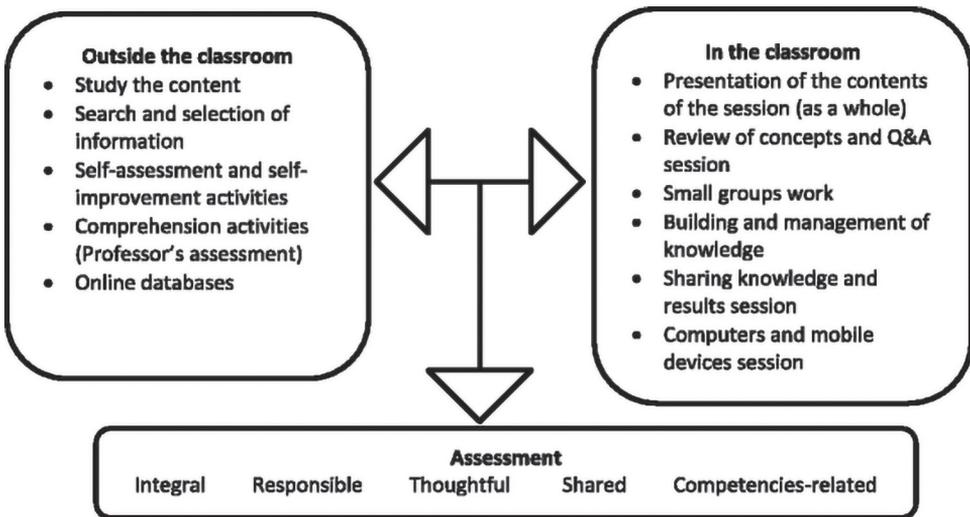


Figure 1 Flipped Classroom model
 Source: Flores, Del-Acro and Silva (2016)

Technological Acceptance Model (TAM) developed by Davis (1989) is one of the most influential research models in studies of the determinants of information systems and Information Technology Acceptance to predict intention to use by individuals (Lee, Kozar and Larsen, 2003). TAM developed by Davis has received considerable attention of researchers in the information system field over the past decade. In TAM, as shown in Figure 2,

perceived usefulness and perceived ease of use are the two important factors that determine individual’s belief in using a particular information and communication technology gadget. Perceived usefulness is the degree to which an individual believes that using a particular information technology would enhance his/her job performance (Davis, 1989). Perceived ease of use and usefulness positively affect the attitudes toward an information system. In addition, perceived ease of use positively affects the perceived usefulness and both of them are influenced by external variables.

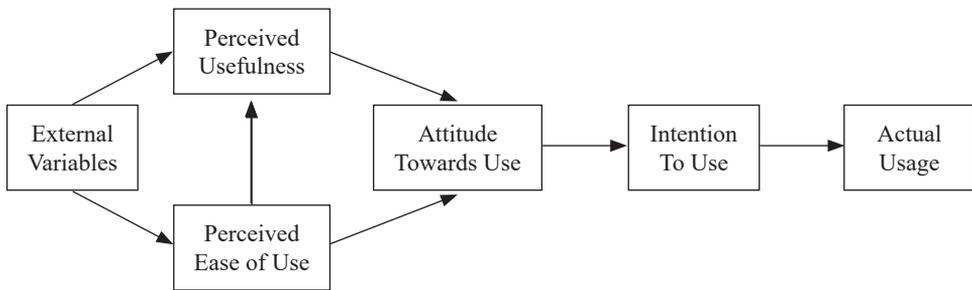


Figure 2 Technology Acceptance Model
 Source: Davis, Bagozzi and Warshaw (1989)

The ability of undergraduate students to implements and integrate appropriate flipped classroom for learning for learning allows them to interact fully with their within and outside the classroom situations. A flipped classroom for learning are the already programmed software tools that are web-based to perform varieties of assigned functions through the communication channels of text-based, audio-based and video-based, all including graphics and animation for the intending users which can be use directly to modify and adopt time and space (Olumorin, 2009).

Perception is the immediate or intuitive recognition or appreciation, as of moral psychological or aesthetic qualities. Marc (2015) defined perception as the improvement in performance of a task due to prolonged exposure of a particular training or a task. Ndibalema (2014) asserted that instructors’ perceptions, preferences and ability to use the available technology are all key factors that influence the composition of interaction within the online learning environment. Napier, Dekhane and Smith (2011) observed that instructors understood that learner-instructor and learner-learner interactions were crucial for high quality online programmes.

Gender, as a possible moderating factor in students' perception on the utilisation of flipped classroom, has been widely identified. The use of electronic media for teaching and learning process varies according to gender (Halder, Halder and Guha, 2015). The influence of gender in classroom utilisation of technology also plays a major role in the selection, development and achievement of instructional objectives. Van Braak (2001) proposed that female students exude lower confidence or knowledge ability than males about using computers. Onasanya et al. (2011) asserted that given the low level of utilisation of ICTs for instructional purposes in Nigeria, male teachers are more computer literate and utilise ICTs for instructional purposes than their female counterparts. However, current trends and technological advancements have seen an uptake of equal parity in male and female use of technological devices. A change gradually being felt even across the education sector.

Anthony (2012) stated that the influence of ICT in education cannot be overstressed, it is remarkable to note that ICT eradicates difficulties regarding space and time. The flipped classroom strategy could influence the learning outcome of the students when they are judiciously utilised. Learning application has also been confirmed to have positive influence in disciplines like Mathematics and Sciences (Athanasios and Marios, 2015); in Practical English phonetics (Osipova, Gnedkova and Ushakov, 2016). This include the utilisation of other learning techniques such as flipped classroom. However, regardless of the benefits of using the flipped classroom concept, if students do not have positive perception towards the use of such learning strategy, they might not be motivated to embrace its adoption into their learning process.

Statement of the Problem

Current research practiced by the educators all around the world focused on flipped classroom educational strategy (Yacout and Shosha, 2016). Most undergraduate students use their mobile phones for personal use but not willing to use it for academic learning (Bamidele and Olayinka, 2012). This is also in support of the findings of Samuel, Utulu and Alonge (2012) on the use of mobile phone in lecture rooms and its implications on education for development revealed that mobile phone has become a source of distraction

since students who are expected to commit their time to academic activities now engage in other irrelevant activities on their phone. Lage, Platt and Treglia (2000) stated that inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa.

According to Bergmann and Sams (2012), when implementing a flipped classroom, lecturer is no longer to give lecture for two hours while students take notes. They can fully utilise class hour for discussion and problem solving with students. Lecturers had not being adopting flipped learning method (Long, Logan and Waugh, 2014). There are studies on perception of flipped classroom. However, none of these studies known to the researcher focused on perception of undergraduate students towards the use of flipped learning in south-west Nigeria which this study therefore seeks to determine.

Research Questions

1. What is the perception of undergraduate students towards the usefulness of flipped classroom for learning?
2. What is the perception of undergraduate students towards the ease of use of flipped classroom for learning?
3. How do undergraduate students' perceived usefulness of flipped classroom for learning differ between male and females?
4. Does undergraduate students' perception of the ease of use of flipped classroom for learning vary based on gender?

Research Hypotheses

Ho1: There is no significant difference between male and female undergraduate students on their perceived usefulness of flipped classroom for learning.

Ho2: There is no significant difference between male and female undergraduate students on their perceived ease of use of flipped classroom for learning.

Methodology

This chapter presents the methodology adopted in the study. They include: research design, sampling and sampling techniques, instrumentation, procedure for data collection, data analysis techniques.

Research Design

A cross-sectional survey type was adopted in this study. Researcher designed questionnaire was used to collect information on perception of undergraduate students on the utilisation of flipped classroom for learning in south-west Nigeria.

Sample and Sampling Techniques

The study investigated the perception of undergraduate students on the utilisation of flipped classroom for learning in south-west Nigeria. The study covered federal, state, and private owned universities that are located in the south-west geopolitical zones of Nigeria. One thousand, eight hundred undergraduate students were randomly selected across the universities.

Research Instrument

The research instrument employed to collect the relevant data for this study was a researcher-designed questionnaire. The research instrument was pilot tested on 20 undergraduate students of universities in North central which were outside the study location. The result of the data was analysed using Cronbach-alpha and the result was 0.81, this shows that the instrument is reliable. The questionnaire was structured in order to help draw appropriate responses from the respondents. In building questionnaire items, the instructions were clear and unambiguous. The questionnaire was divided into two sections. Section A focused on respondents' bio data, section B provided questions on undergraduate students perceived usefulness and perceived ease of use of flipped classroom for learning. Respondents ticked (✓) as appropriate for their response, and fill in blank spaces to provide suitable answers where applicable.

Data Analysis Techniques

The analysis and interpretation of data obtained through the questionnaire was done using descriptive and inferential statistics. Frequency, mean and percentage was used to analyse the responses to the research questions given. Hypothesis 1 and 2 were tested using *t*-test. The analyses were done using SPSS 23 at 95% confidence interval and 0.05 level of significance.

Data Analyses and Results

As shown in Table 1, male respondents formed the highest with 906 (56.03%) while their female counterpart were 711 (43.97%).

Table 1 Distribution based on gender

Gender	Frequency	Percent	Cumulative Percent
Male	906	56.03	56.03
Female	711	43.97	100.0
Total	1617	100.0	

Table 2 revealed that 843 (52.1%) of the respondents were from federal institutions, 501 (40.0%) from state owned universities while 273 (16.9%) from private owned universities.

Table 2 Distribution based on school ownership

School ownership	Frequency	Percent	Cumulative Percent
Federal	843	52.1	52.1
State	501	40.0	92.1
Private	273	16.9	100.0
Total	1617	100.0	

Analyses of Research Questions

Research Question 1: What is the perception of undergraduate students towards the usefulness of flipped classroom for learning?

Table 3 investigated the perceived usefulness of undergraduate students of flipped classroom for learning. The grand mean of 2.92 established that undergraduate students perceive flipped classroom to be usefulness for learning.

Table 3 Perceived usefulness of flipped classroom

S/N	Influence	Mean	SD
1.	Flipped classroom are useful in teaching and learning process	3.23	0.883
2.	The use of flipped classroom would improve learning performance	2.79	0.930
3.	Learning will be more productive with the use of flipped classroom	2.81	0.737
4.	Using flipped classroom will save time	2.89	1.008
5.	Flipped classroom when judiciously adopted gives successful and effective learning	2.91	0.875
6.	It has increased my reasoning ability	2.83	0.906
7.	Flipped classroom enhances student participation in the course content	2.78	0.868
8.	The use of flipped classroom enhances interaction with peers and teachers	3.22	0.850
9.	Flipped classroom improves exposure to relevant educational media	2.94	0.831
10.	Using flipped classroom arouses interest for learning.	2.80	0.773
Grand Mean		2.92	

Research Question 2: What is the perception of undergraduate students towards the ease of use of flipped classroom for learning?

Table 4 investigated the perceived ease of use of undergraduate students of flipped classroom for learning. The grand mean of 2.78 established that undergraduate students perceive flipped classroom to be easy to use for learning.

Table 4 Perceived ease of use of flipped classroom for learning

S/N	Influence	Mean	SD
1.	Flipped classroom are easy to use for learning	2.89	0.654
2.	Flipped classroom are simple to use for learning	3.03	0.901
3.	Flipped classroom are user friendly	2.98	1.012
4.	I learned to use flipped classroom quickly for learning	2.05	0.534
5.	I quickly remember how to use flipped classroom for learning	2.44	0.775
6.	Flipped classroom make my work faster	3.23	0.805
7.	I became more skillful with using flipped classroom for learning	2.51	0.789
8.	My interaction with other students using flipped classroom is understandable	3.40	0.933
9.	I can use flipped classroom for learning without any written instructions	2.22	0.778
10.	I recover from mistakes quickly when I use flipped classroom for learning	3.00	0.909
Grand Mean		2.78	

Hypotheses Testing

Hypothesis 1:

Ho1: There is no significant difference between male and female undergraduate students on their perceived usefulness of flipped classroom for learning.

It was revealed in Table 5 that $t(1615) = 2.47, p > 0.05$. That is, the result of the t -value of 2.47 resulting in 1.28 significance value was greater than 0.05 alpha value. Hence, the null hypothesis, there is no significant difference between male and female students' perception to use flipped classroom for learning was not rejected. This implies that both male and female students perceived flipped classroom to be useful for learning.

Table 5 *t*-Test on male and female students' perception to use flipped classroom

Gender	No	X	SD	df	t	Sig. (2-tailed)	Remarks
Male	906	3.12	0.69	1615	2.47	1.28	Not rejected
Female	711	3.16	0.70				
Total	1617						

Hypothesis 2:

Ho2: There is no significant difference between male and female undergraduate students on their perceived ease of use of Flipped classroom for Learning.

It was revealed in Table 6 that $t(1615) = 2.09, p > 0.05$. That is, the result of the *t*-value of 2.09 resulting in 0.93 significance value was greater than 0.05 alpha value. Hence, the null hypothesis, there is no significant difference between male and female students' perception towards the ease of use of flipped classroom for learning was not rejected. This implies that both male and female students perceived flipped classroom to be easy to use for learning.

Table 6 Test on male and female students' perception towards the ease of use of flipped classroom

Gender	No	X	SD	df	t	Sig. (2-tailed)	Remarks
Male	906	3.17	0.55	1615	2.09	0.93	Not rejected
Female	711	3.25	0.67				
Total	1617						

Discussion

Undergraduate students perceived flipped classroom to be useful and easy to use for learning. In support of the findings, Adeyanju (2015) noted that the use of ICT makes lessons more interesting, more enjoyable for teachers and their students, more diverse, more motivating and supportive of productive learning. Corroborating this finding was that of Falade (2013) outcome which revealed that the stakeholders' perceived ease of use of ICT integration into distance learning in Nigeria was positively on the high side.

Odewumi and Yusuf (2018) studied flipped classroom among the junior secondary school in Abeokuta on tie and dye, the study concluded that learners taught with flip performed significantly positive. Also, Rani and Muniandy (2017) investigated the effect of flipped classroom on computer science students' engagement level among pre-university students.

There was no significant difference between male and female undergraduate students' perception towards the use of flipped classroom for learning. These findings on gender agreed with the earlier finding of Wasaoisen (2006) who did not find any significant differences between males and females ICT usage. There was no significant difference between undergraduate students' perception towards the ease of use of flipped classroom for learning based on gender. Elian and Hamaidi (2019) conducted study on the effect of flipped classroom and concluded that there are statistically significant differences in the Means on the educational achievement test attributed to the teaching strategy, in favor of the members of the experimental group. Toh, Tengah, Tan and Leong, (2017) examined the flipped classroom strategy and its effects of implementation at the elementary school level mathematics lessons and concluded that there seemed to be a statistically significant improvement in Year 7 Secondary Mathematics after the flipped classroom throughout the three cycles giving us evidence that flipped classroom approach does have a positive impact in the performance of the students.

Conclusion

This study investigated the perception of undergraduate students towards the use of flipped classroom for learning in south-west Nigeria. The findings deduced that undergraduate students perceived flipped classroom to be useful and easy to use for learning. This implies that learning and academic performance will be improved if flipped classroom is being adopted for teaching and learning.

Recommendations

On the bases of the findings, the following recommendations were made. Learning environments in our schools should be equipped with necessary flipped classroom facilities to enhance students to learn effectively. It was

also recommended that students should be encouraged to adopt flipped classroom learning style in their studies. Since students' perceived flipped classroom to be useful and easy to use for learning, stakeholders in education are encouraged to procure flipped classroom environments in universities in Nigeria.

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