

STUDENTS PERCEPTION OF THE USE OF FLIPPED CLASSROOM TEACHING/LEARNING FOR EFFECTIVE INSTRUCTIONAL DELIVERY IN UNIVERSITY OF NIGERIA NSUKKA ENUGU STATE

By
SAMUEL A. OSITA

School of vocational and technical education, University of Nigeria Nsukka
07067656964

&

DR. (Mrs.) ANGELA ACHEBE

Department of Home Economics, Niger State College of Education, Minna
E-mail:angelachebe@gmail.com, Phone No: 08069558108

&

AMINAT LADI, AKANDE

Department of Home Economics, Niger State College of Education, Minna
E-mail:aminatladiakande@gmail.com, Phone No: 08062143710

Abstract

The study was carried out to determine Student's perception of the use of flipped classroom teaching/learning for effective instructional delivery on Nigeria education system in the University of Nigeria Nsukka, Enugu State. The purpose of the study were: to determined the technologies applied in flipped classroom, to ascertain the opinion of students on the efficiency of the use of flipped classroom for effective instructional delivery, and to identify the barriers to effective use of flipped classroom for instructional delivery and to identify strategies for improving the use of flipped classroom for effective instructional delivery. Four research questions guided the study. The study adopted survey research design. The population for the study comprised 58 students of Home Economics and Industrial Technical in Vocational and Technical Education. There was no sampling because of the manageable size of the population. The Instrument used for data collection was structured questionnaire. Mean and standard deviation was used to analyze the data for answering research questions. It was therefore found that all the respondents have high perception of the use of flipped classroom teaching and learning for the effective instructional delivery in University of Nigeria Nsukka because they agreed to all the items presented as it regards the use of flipped classroom teaching and learning for the effective instructional delivery. It was recommended that The NCC, the NCCE should restructure a formidable and skill-oriented curriculum for the Home Economics and Industrial Technical students. Teachers should create a student-centered learning environment: Relevant resources such as introduction of virtual realities for training in Vocational Education should be provided in the Nigerian universities.

Keyword: vocational education, perception, flipped, classroom teaching, effective instruction, delivery

Introduction

Technological development has transformed the style of teaching-learning behavior from passive learning to active learning and from traditional classroom to modern classroom. Blended learning is one of the emerging approaches which are supported by multimedia technology. In a blended learning approach, students learn in a conventional style with face-

to-face interactive learning in the classroom that is mixed with other elements such as online learning outside the class-room thereby encouraging independent work for global crises solution on Nigeria education system. Corcoran (2013pp 22-23) stresses that blended learning is a combination of classroom activities and online learning experiences outside the class. The author also believes that 'blended learning is a fundamental redesign of the instructional model with a shift from lecture-centered to student-centered instruction where students become active and interactive learners' Also, cross wel (2013), point out that 'at the activity and course levels, blended learning can be used to design learning activities, interactions among students, and interactions between or with instructors. As the term combine learning gets more attention from educators, various types of combine learning are being developed. Flipped classroom is one of those variants implemented in current teaching and learning practices (Daghan & Akkoyunlu, 2014 pp 333 -338).

A flipped classroom is one where students are introduced to content at home, and practice working through it at school. In this blended learning approach, face-to-face interaction is mixed with independent study via technology for remedies of challenges. Flipped Classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom. In traditional schools, each topic in class receives a fixed amount of time for all students. Berrett, (2012) state that in flipped classrooms students are engaged in learning activities both inside and outside the classroom Inside the classroom, the focus is on interactive group activities, while outside the class watching video lessons and conducting discussions by asking and responding to the questions using texts is the main focus. Students watch pre-recorded videos at home, and then come to school to do the homework armed with questions and at least some background knowledge. Bergmann and Sams (2014) define flipped classroom as a 'direct instruction [which] is done through video or some other learning object that students can use individually prior to coming to classes. According to them 'this time shift then allows the teacher to use class time for work that is either better done as a large group, or that requires individualized teacher attention' (Bergmann &Sams, 2014,)The concept behind the flipped classroom is rethinking when students have access to the resources they need most. If the problem is that students need help doing the work rather than being introduced to the new thinking behind the work, than the solution the flipped classroom takes is to reverse that pattern

A side benefit is that teachers can record lectures that emphasize critical ideas, power standards, and even the pace of a given curriculum map. It also has the side benefit of allowing students to pause, rewind, and Google terms; re-watch, etc., as well as creating a ready-made library for student review, make-up work, etc. They will learn independently with the guidance of technology tools and the lecturer will act as a facilitator. The technologies to be used is an essential part of making this flipped class room work.

Technology in the twenty-first century puts direct access to information, and the Internet can be handily accessed through numerous technology tools such as laptop, computer, and Smartphone. Now more than ever, students spend much of their waking time on using some sort of technology tools; by using this technology, it is possible for them to interact with friends, instructors, and learning content everywhere, not only in the class but also outside the class through distance learning. Also, many free learning materials have been provided on Web sites for learning activities. Even more, the use of the traditional learning approach which focuses on the instructor as the center of knowledge is irrelevant in today's digital age (Chen 2014 pp 16 -27). As a solution, traditional classroom activities such as lectures, labs, homework, and exams can be moved to the Web 2.0 technology and students can study everywhere outside the classroom (Staker& Horn, 2012). This positive impact of technology growth has influenced the development of instructional technology in education and replaced

the use of the blackboard with online video lectures (Clark, 2015 pp 91-115). An entry of technological tools have flooded today's classrooms with the rising trend of wireless technologies and an increasing focus by school districts to seek one-to-one technology initiatives, teachers search to find the best tools and techniques to employ for increased student achievement. As new technologies emerge, teachers need to think seriously about best practices in relation to these technologies. One instructional strategy that has shown promise for student learning is flipped teaching, a strategy that has evolved into a platform for promoting serious thinking, relationship, and social interaction with peers on an academic level.

Social implications are another factor to be considered when addressing the blend of technology as part of the flipped classroom. Social media, including Face book, Whatsapp, Twitter, and text messaging, have been proved to be effective tools in motivating students to collaborate academically outside of the classroom using a tool that they are already socially comfortable with.

Vocational and Technical education is the academic and vocational preparation of students for jobs involving applied skill and modern technology. A kind of education which equips with skills that involve the use of practical approaches and other material instruments in executing projects guidance in more specific areas relating to technology including electronics, computers, web design, and other fields requiring vocational and industrial training. This will help the student to use the strategy to provide the nut and bolts equipments', utensils, and tools, that is comfortable to students out of class and then uses the classroom time to employ meaningful discussion or application. This increases the vocational and technical student way of thinking by using what they like doing which is related to their field of study which deals with technologies, skills and a lot of practical work such as going back home and putting what he/she has learn to his own benefit this could give the student good perception of the flipped classroom teaching/learning.

Statement of the Problem

In order for effective learning to occur in the classroom, a teacher's instruction must be matched to the learners that receive the instruction. Student acceptance understanding and engagement area important part of the achievement of modern instructional practices

In order for students to learn successfully within the flipped classroom, the researcher must consider more than just the tools used and strategies employed. More specifically, lecturer need a deeper understanding about how students perceive flipped classroom in relation to other methods and how students view it impacting on their skill to think seriously, to work together, and to make use of social and educational tools for academic purposes as solution in global crises.

The current gap in this study include the level of skills possess by lecturer on the use of flipped classroom for effective instructional delivery Furthermore, an understanding of whether or not students perceive this strategy as leading to more meaningful learning, increased instructional delivery and changing social interaction in the classroom is still lacking. The problem being addressed in this study is a gap in literature related to how Home economics and industrial technical education student perceive the use of flipped classroom for effective instructional delivery, including how they perceive it in influencing their critical thinking skills and social interaction within peers.

Purpose of the Study

The general purpose of the study is to carry out an assessment on vocational and technical education student's perception of the use of flipped classroom teaching/learning for effective instructional delivery in university of Nigeria Nsukka Enugu State.

Specifically, the study sought to:

- Determine technologies applied by the teachers/students in flipped classroom
- Ascertain the opinion of students on the efficacy of the use of flipped classroom for effective instructional delivery
- Identify the barriers to effective use of flipped classroom for instructional delivery in home economics and industrial technical education of UNN.
- Identify the strategies for effective use of flipped classroom for instructional delivery.

Research Questions

The study will therefore answer the following research questions

- What are the technologies used or applied by teachers/students in flipped classroom?
- What is the opinion of student on the use in flipped classroom for effective instructional delivery?
- What are the barriers of flipped classroom for instructional delivery in home Economics and Industrial Technical Education UNN?
- What are the strategies for improving the use of flipped classroom for effective instructional delivery?

Hypothesis

The following null hypothesis guided the study, and tested at 0.5 level of significance

- H₀₁: There is no significant difference in the mean responses of male and female students on the on the technologies used by teacher in flipped classroom.
- H₀₂: There is no significant different in the mean responses of male of female students on the use of flipped classroom for effective instructional delivery.
- H₀₃: There is no significant different in the mean responses of male and female students on the barrier of flipped classroom for instructional delivery in industrial technical education.
- H₀₄: There is no significant different in the mean responses of male and female students on the strategies for improving the use of flipped classroom for effective instructional delivery.

Theoretical Review

Schema Theory

Piaget (2014) originally posed schema theory for explaining how concepts were learned and linked in memory along with environmental stimuli and emotions related to the experience. Schemas are units of understanding that interconnect thoughts and ideas in memory (Piaget, 2014). In this theory, this process can be recalled as a schema and used effectively by the learner. Plass, Moreno, and Brunken (2010) explained the value of schema formation in this way: First, a highly complex schema can be manipulated as one element rather than as multiple interacting elements when brought into working memory. Second, well developed schema can be processed automatically, minimizing the demands of cognitive resources to tackle the task at hand.

Schema theory is often used as a conceptual or theoretical framework for research studies in cognitive psychology and social psychology. Schema theory itself was more recently studied by Anderson et al. (2014) and McVee, Dunsmore, and Gavelek (2015).

Authors in both studies indicated that schema involve more than just the information contained in the lesson. As content is learned in the classroom, schemata are formed that encompass the entire learning experience. Learning experiences that occur in rich context and which encourage learners to consider information through a variety of avenues and tasks will lead to greater mastery and generalization. The subsequent schema formed this way can be linked to future content with greater ease. In terms of the flipped model, findings by Anderson et al. (2015) support the approach that schemata must be established. Furthermore, varied level of support, based on strength of schema, should be available. These varied levels of support are often achieved through the in class activities intended to firm up and deepen student learning.

Schema theory was chosen to be a part of this theoretical framework for two reasons. First, schema theory, as presented by Anderson et al. (2014) lent insight to this study by providing the framework how students stored and remembered concepts. The method that individuals make connections and form the web of experiences is how learning takes place. Flipped teaching targets increased learning through removing lower order thinking tasks from the classroom setting so that time can be freed up for higher order thinking and authentic tasks. In this model, the instructor seeks to increase the amount that a student learns by increasing responsibility for mastery level learning outside of the classroom, while expecting students to deepen their knowledge further through guided classroom activities and authentic application assignments.

Second, Schema theory explains how thoughts are coded into memory and the relationship that pre training has with cognitive load. Schema theory supports cognitive load theory by confirming that concepts can be considered through break into pieces information and by emphasizing that certain tasks employ more regions of the brain. Additionally, the pathways moving between these regions carry a larger cognitive load, requiring more time and work to process.

Methodology

A descriptive survey research design was used for this study. The design was considered appropriate for this study because it enabled the researcher to elicit information from the entire population. Moreover it is less expensive, have greater efficiency and accuracy. The researcher does not have any intention to manipulate the study's variables but to study them as they naturally appear. The population for this study consisted of all home Economics and Industrial Technical Education in Vocational Technical Education students.

The entire population for the study is 58. There will be no sampling due to the small size of the population. The instrument for data collection was the questionnaire. The questionnaire items were gathered after review of literature on management and human resource skills. The questionnaire consists of two parts. Part 1 solicited for personal information of respondents. Part 2 was divided into four sections, A, B, C, D. Section A sought information on the technologies used by teachers/students in flipped classroom; section B will solicited for the opinion of students on the efficiency used in flipped classroom for effective instructional delivery. Section C solicited for the barriers of flipped classroom for instructional delivery in Home Economics and industrial technical Education UNN. Section D will solicit the strategies for improving the use of flipped classroom for effective instructional delivery.

The scaling responses of the instrument was based on five point likert scale of strongly agree (S A) 5, agree (A) 4, Undecided (UN) 3, Disagree (D) 2, Strongly Disagree (SD) 1.

The instrument that was used for data collection was subjected to face validation. Three lecturers two from the department of Industrial Technical and one from Home Economics Education, University of Nigeria, Nsukka, were required to face validate the research

instrument. These were asked to identify ambiguities proffer suggestions for improving the instrument towards meeting the objectives of the study. This validates input on the items were utilized in developing the final instrument for data collection.

The reliability of the instrument was established using cronbach alpha. The questionnaire was administered on 20 students in the department of Industrial Technical Education in (ESUT) Enugu State which is not part of the area of the study and the reliability estimated to determine the reliability of the instrument. Cronbach Alpha was used to determine the internal consistency of the instrument and reliability coefficients of 0.823, 0.816, 0.692, and 0.772 were obtained respectively for the four clusters of the instruments with the general score of 0.881. The scores obtained shows a high reliability index, showing the instrument was appropriate for the study

Method of Data Collection

A letter of introduction to the respondents was used to establish a rapport between the researcher and the respondents. This was attached to the questionnaires to be administered on the respondents by the researcher. The researcher negotiated with the school authorities before administering the questionnaire to home economics and industrial technical student. The students were given sufficient time to respond to the questionnaire before retrieval. This method of administration adapted ensured high response rate of 100% returns.

Method of Data Analysis

In analyzing the research questions, frequency counts and mean was used for all the four research questions. A mean of 3.50 and above will be regarded as being agreed while an item with mean below 3.50 will disagreed upon. All the four null hypotheses were tested using t-test at 0.05 level of significance if the t-cal is more than the t-tab, the null Hypothesis was rejected; but if the t-cal is less than the t-tab, the null hypothesis were Accepted.

Result

This chapter deals with the presentation of results and data analysis. The results are arranged according to the research questions to which they relate.

Research Question One: What are the technologies used or applied by teacher/students in flipped classroom?

Table 4.1: Mean and standard deviation of respondents on the technologies used or applied by teacher/students in flipped classroom

S/N	ITEM STATEMENT	Mean	SD	Remark
1.	Wikis and blogs tools can be employed to interact virtually outside the class and to work collaboratively to solve problems or to exchange ideas.	4.14	0.63	Agreed
2.	Laptops, tablet or mobile phone can be used by student and lecturers as reading devices, watching videos lectures independently.	4.69	0.47	Agreed
3.	Google drive is a technology tool for flipped classroom that has many advantages for processing programs, including real time automatic updates visible to all users, a feature that enables robust discussion and sharing.	4.31	0.47	Agreed
4.	YouTube is a tool used in flipped classroom which teacher to structure coursework according to topic and create a playlist while enjoying basic video editing features, such as captioning, sound trackers and trimming/stabilizing.	4.38	0.49	Agreed
5.	Camatasia studio perhaps the most popular screen casting technology available, teacher can source new and existing screen captures, power points presentation.	3.03	0.49	Disagreed
6.	Learning management system (LMS) help you create an organized content and track the progress rate of the learners.	3.40	0.62	Disagreed
	Grand Mean and Standard Deviation	4.04	0.27	Agreed

Source: Computed field data 2022.

In the table 4.1 above, the result show that respondents agreed to items 1, 2, 3, and 4, with mean ranging from 4.14 - 4.69 and disagreed to items 5 and 6 with a mean range of 3.03 – 3.40 as the technologies used or applied by teacher/students in flipped classroom. The grand mean rating is 4.0 is above the benchmark mean score of 3.50 This means that on a general note, that the presented items are technologies used or applied by teacher/students in flipped classroom. The result in table 4.1 also show that the Standard deviation of the six items were all less than 1.5 indicating that all scores in their responses on technologies used or applied by teacher/students in flipped classroom did not differ much from the mean scores which also implies that the opinion of the respondents are closely related.

Research Question Two: What is the perception of students on the efficacy used in flipped classroom for effective instructional delivery?

Table 4.2: Mean and standard deviation of respondents on perception of students on the efficacy used in flipped classroom for effective instructional delivery

S/N	ITEM STATEMENT	Mean	SD	Remark
7.	Enhance their engagement in classroom activity, participate in discussions, exchange ideas and solve problems with peers.	4.17	0.38	Agreed
8.	Instruction helps student to work together in a group interactively to solve problems.	4.34	0.48	Agreed
9.	Having more opportunities to collaborate with each other.	4.55	0.50	Agreed
10	Blending of new technology and the traditional classroom has established interacting learning.	4.41	0.56	Agreed
11	It enables students to build a learning community and exchange ideas to solve problems.	4.24	0.51	Agreed
12	Students can enrich the dialogue with friends both inside and outside the class.	4.48	0.50	Agreed
13	Flipped learning increases student interaction and enhanced interactions between all parties.	4.28	0.45	Agreed
14	Flipped enabled participation and engagement of discussion in class and improved high level of confident to apply their knowledge.	4.62	0.49	Agreed
Grand mean and Standard Deviation		4.39	0.18	Agreed

Source; Computed Field data 2022

In the table 4.2 above, the result show that respondents agreed to all the items presented that is items 7- 14, with mean ranging from of 4.17 to 4.62 as the perception of students on the efficacy used in flipped classroom for effective instructional delivery. Among the eight items presented, item 14 with a mean score of 4.69 is the highest while item 7 with a mean score of 4.17 is the lowest perception of students on the efficacy used in flipped classroom for effective instructional delivery. The grand mean rating is 4.39 is above the benchmark mean score of 3.50. This means that on a general note, that the students have high perception on the efficacy used in flipped classroom for effective instructional delivery. The result in table 4.2 also show that the Standard deviation of the eight items were all less than 1.5 indicating that all scores in their responses on perception of students on the efficacy used in flipped classroom for effective instructional delivery did not differ much from the mean scores which also implies that the opinion of the respondents are closely related.

Research Question Three: What are the barriers of flipped classroom for effective instructional delivery in home economics and industrial technical education?

Table 4.3: Mean and standard deviation of respondents on the barriers of flipped classroom for effective instructional delivery in industrial technical education

S/N	ITEM STATEMENT	Mean	SD	Remark
15.	Students had difficulty adapting to the flipped classroom because of the new approach.	4.48	0.50	Agreed
16.	Challenging students not having time to watch the video lesson outside the classroom.	4.31	0.47	Agreed
17.	Instructors faced problems in practicing flipped learning, as more time would be spent on designing good content	4.52	0.50	Agreed
18.	Poor quality of video usually become a common problem in flipped classroom practices	4.45	0.73	Agreed
19.	Unattractive content and design of a video lecture, the students find it tedious to watch outside the class.	4.34	0.48	Agreed
20.	Lack of alignment of the new system to the current system.	4.28	0.45	Agreed
21.	Possible loss of control (digital, devices, online software, databases – whom will audit them)	3.93	0.45	Agreed
22.	Project management/risk management this related to project scope, time, tasks, milestone, and capital management.	3.66	0.48	Agreed
23.	Lack of in house skill – with teacher's typical time pressed schedule.	4.34	0.61	Agreed
24.	Capital (money) and time.	4.52	0.50	Agreed
Grand Mean and Standard deviation		4.28	0.16	Agreed

Source; Computed Field data 2022

In the table 4.3 above, the result show that respondents agreed to all the items presented that is items 15- 24, with mean ranging from of 3.66 – 4.52 as the barriers of flipped classroom for effective instructional delivery in home economics and industrial technical education. Among the ten items presented, item 17 and 24 with a mean score of 4.52 is the highest while item 22 with a mean score of 3.66 is the lowest barriers of flipped classroom for effective instructional delivery in home economic and industrial technical education. The grand mean rating is 4.39 is above the benchmark mean score of 3.50. This means that on a general note, that the presented items are the barriers of flipped classroom for effective instructional delivery in home economic and industrial technical education. The result in table 4.3 also show that the Standard deviation of the ten items were all less than 1.5 indicating that all scores in their responses on the barriers of flipped classroom for effective instructional delivery in industrial technical education did not differ much from the mean scores which also implies that the opinion of the respondents are closely related.

Research Question Four: What are the strategies for improving the use of flipped classroom for effective instructional delivery?

Table 4.3: Mean and standard deviation of respondents on the strategies for improving the use of flipped classroom for effective instructional delivery

S/N	ITEM STATEMENT	Mean	SD	Remark
25.	create a student-centered learning environment	4.31	0.65	Agreed
26.	Allow students easy access to the course material at any point in time and from any location.	4.93	0.26	Agreed
27.	Evaluating the learning outcomes	4.52	0.50	Agreed
28.	Encourage interaction with the content that is posted, ignite discussions, and solicit feedback.	4.28	0.87	Agreed
29.	Interaction with teachers so as to exchange ideas on how the entire experience can be better.	4.10	0.61	Agreed
Grand Mean and Standard deviation		4.43	0.32	Agreed

Source; Computed Field data 2022

In the table 4.4 above, the result show that respondents agreed to all the items presented that is items 25-29, with mean ranging from of 4.10 – 4.93 as the strategies for improving the use of flipped classroom for effective instructional delivery. Among the five items presented, item 26 with a mean score of 4.93 is the highest while item 29 with a mean score of 4.10 is the lowest strategies for improving the use of flipped classroom for effective instructional delivery. The grand mean rating is 4.43 is above the benchmark mean score of 3.50. This means that on a general note, that the presented items are the strategies for improving the use of flipped classroom for effective instructional delivery.

The result in table 4.4 also show that the Standard deviation of the five items were all less than 1.5 indicating that all scores in their responses on the barriers of the strategies for improving the use of flipped classroom for effective instructional delivery did not differ much from the mean scores which also implies that the opinion of the respondents are closely related.

Discussion on the Findings

The findings of the study are discussed in line with the specific purpose of the study as follows: The technologies used or applied by teacher/students in flipped classroom. It was revealed in this study that the respondents (male and female students) agreed that all the presented items are the technologies used or applied by teacher/students in flipped classroom. The technologies used or applied by teacher/students in flipped classroom include: Wikis and blogs can be employed to interact virtually outside the class and to work collaboratively to solve problems or to exchange ideas: Laptops, tablet or mobile phone can be used by student and lecturers as reading devices, watching videos lectures independently: Google drive is a technology tool for flipped classroom that has many advantages for processing programs, including real time automatic updates visible to all users, a feature that enables robust discussion and sharing:: YouTube is a tool used in flipped classroom which teacher to structure coursework according to topic and create a playlist while enjoying basic video editing features, such as captioning, sound trackers and trimming/stabilizing.

This present study is consistent with Kim et al. (2014) who reported that students in a flipped classroom watched video lectures on YouTube and collaborated on Google Docs and Google Hangout..Supporting the findings of the study, Anstrong (2011) mentioned that the activity of teaching and learning is not only limited to behind the classroom wall, but can also take place outside the class. Therefore, by using various technology media or online platforms, students can study virtually, watch learning subjects for free all the time and interact with students and instructors outside of the class.

The perception of students on the efficacy used in flipped classroom for effective instructional delivery. It was revealed in this study that respondents (male and female students) agreed that all the presented items are the efficacy used in flipped classroom for effective instructional delivery. The high perception of students on the efficacy used in flipped classroom for effective instructional delivery include: Enhance their engagement in classroom activity: participate in discussions, exchange ideas and solve problems with peers: Instruction helps student to work together in a group interactively to solve problems: Having more opportunities to collaborate with each other: Blending of new technology and the traditional classroom has established interacting learning: It enables students to build a learning community and exchange ideas to solve problems: Students can enrich the dialogue with friends both inside and outside the class: Flipped learning increases student interaction and enhanced interactions between all parties.

In agreement to the findings of this of this study, Beapler et al. (2014) released results of their research showed that students' outcomes in a flipped classroom were significantly better than those in a conventional classroom or control class, and students' perceptions of the learning environment were also improved.

DiVall, (2013) in support to the findings of the study noted that through formative assessment in the flipped classroom, the instructor could evaluate students' improvement in their learning activities while the students could understand what needed to be done to overcome their deficiencies in learning.

The barriers of flipped classroom for effective instructional delivery in industrial technical education. The findings of the study revealed that the respondents (male and female students) agreed that all the presented items are barriers of flipped classroom for effective instructional delivery in industrial technical education. The barriers are: Students had difficulty adapting to the flipped classroom because of the new approach: Challenging students not having time to watch the video lesson outside the classroom: Instructors faced problems in practicing flipped learning, as more time would be spent on designing good content: Poor quality of video usually become a common problem in flipped classroom practices: Unattractive content and design of a video lecture, the students find it tedious to watch outside the class: Lack of alignment of the new system to the current system: Possible loss of control (digital, devices, online software, databases – whom will audit them): Project management/risk management this related to project scope, time, tasks, milestone, and capital management: Capital (money) and time: Lack of in house skill – with teacher's typical time pressed schedule. Poor quality of video usually became a common problem in flipped classroom practice. Bailey (2014) also stressed that if the content and design of a video lecture is unattractive, the students will find it tedious to watch outside the class.

In consonance with the findings of this study, Clark (2015) posed a model referred to as explore-flip-apply where students engaged in initial activities to their background knowledge and perceptions, after which they participate in the flipped learning throughout of class assignments, lecture videos, etc., followed by in class applications which extend into serious thinking behaviour and assignments.

Teachers can do this a variety of ways (online quizzing mechanisms are a great place to start). If monitored properly, teachers should see a positive impact on performance over time. Teachers should encourage interaction with the content that is posted, ignite discussions, and solicit feedback. Davies, Dean & Ball, 2013, suggested that inverted learning and instruction strategies allowed instructors to work in and outside of their comfort zone and to encourage students to do the same.

Conclusion

The study was carried out to assess the vocational and technical education student's perception of the use of flipped classroom teaching/learning for effective instructional delivery. In carrying out the study, the study determined the technologies applied in flipped classroom, ascertain the opinion of students on the efficiency of the use of flipped classroom for effective instructional delivery, identify the barriers to effective use of flipped classroom for instructional delivery in industrial technical education of UNN and strategies for improving the use of flipped classroom for effective instructional delivery. It was therefore found that all the respondents has high perception of the use of flipped classroom teaching and learning for the effective instructional delivery in University of Nigeria Nsukka because they agreed to all the items presented as it regards the use of flipped classroom teaching and learning for the effective instructional delivery. Based on the findings, the study concluded that that the usage of flipped classroom teaching and learning for the effective instructional delivery is being hindered by instructors being faced with problems in practicing flipped learning, as more time would be spent on designing good content and Students having difficulty in adapting to the flipped classroom because of the new approach.

Recommendations

Having highlighted some of the major findings it would be appropriate and logical to tender the following recommendations for greater use of flipped classroom teaching/learning for effective instructional delivery.

1. Technical and vocational education and training in Nigeria University should move from being theoretical to the acquisition of relevant skills needed for efficient use of flipped class room.
2. Teachers should be trained and retrained on better usage of flipped class room
3. The National University Commission, the National Commission for colleges of education should restructure a formidable and skill-oriented curriculum for the industrial technical students.
4. Teachers should create a student-centered learning environment:

References

- An, Y.J., &Reigeluth, C. (2011). Creating technology-enhanced, learner-centered classrooms: K-12 teachers' beliefs, perceptions, barriers, and support needs. *Journal of Digital Learning in Teacher Education*, 28(2), 54–62. doi: 10.1080/21532974.2011.10784681
- Armstrong, D. (2011). Students' perceptions of online learning and instructional tools: A qualitative study of undergraduate students' use of online tools. In *World Conference on E Learning in Corporate, Government, Healthcare, and Higher Education* (Vol. 2011, pp. 1034 1039). Retrieved from <http://www.editlib.org/p/38847>
- Baepler, P., Walker, J. D., &Driessen, M. (2014). It's not about seat time: Blending, flipping, and efficiency in active learning classrooms. *Computers & Education*, 78, 227–236. doi: 10.1016/j.compedu.2014.06.006
- Bailey, A. (2014). Teaching Alice Walker's *The Color Purple*: Using technology and social media to foster critical thinking and reflection. *Virginia English Journal*, 64(1), 17–26. Retrieved from <http://search.ebscohost.com>. (Accession No. 98060385)
- Bergmann, J., &Sams, A. (2014b). Flip your classroom reach every student in every class every day. Alexandria, VA: International Society for Technology in Education; ASCD.206
- Berrett, D. (2012). How “flipping” the classroom can improve the traditional lecture. *Education Digest*, 78(1), 36–41.
- Boutell, M., & Clifton, C. (2011). SPLICE: Self-paced learning in an inverted classroom environment. *Proceedings of the 42nd ACM Technical Symposium on Computer Science Education*(pp.1–8).
- Chen, Y., Wang, Y., Kinshuk, & Chen, N. (2014). Is FLIP enough? Or should we use the FLIPPED model instead? *Computers & Education*, 79, 16-27. Retrieved from <http://www.eduimed.com/index.php/eimj/article/view/316208>
- Clark, K. R. (2015). The effects of the flipped model of instruction on student engagement and performance in the secondary mathematics classroom. *Journal of Educators Online*, 12(1), 91–115. Retrieved from <http://www.thejeo.com/Archives/Volume12Number1/Clark.pdf>
- Corcoran, J. (2013). Flipping reading lessons at a Title I school. *School Administrator*, 70(3), 22–23. Retrieved from <http://search.ebscohost.com>. (Accession No. 87682153)
- Creswell, J. W. (2013). *Qualitative inquiry and research design: choosing among five approaches*. Los Angeles, CA: SAGE Publications.
- Dağhan, G., &Akkoyunlu, B. (2014). A qualitative study about performance based assesment methods used in information technologies lesson. *Educational Sciences: Theory & Practice*, 14(1), 333–338. doi: 10.12738/estp.2014.1.2005 209
- Davies, R., Dean, D., & Ball, N. (2013).Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. *Educational Technology Research & Development*, 61(4), 563–580. doi:10.1007/s11423-013-9305-6
- DiVall, M. V., Hayney, M. S., Marsh, W., Neville, M. W., O'Barr, S., Sheets, E. D., &Calhoun, L. D. (2013).Perceptions of pharmacy students, faculty members, and administrators on the use of technology in the classroom.*American Journal ofPharmaceutical Education*, 77(4), 1–7.doi:10.5688/ajpe77475