Flipping the Classroom Using Simple Technologies by Lecturers in Nigerian Universities

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Abstract— This is a survey that investigated flipping the classroom using simple technologies by lecturers in Nigerian Universities. Simple technological tools are day-to-day appliances, services and applications such as smartphones and or laptops, email account, WhatsApp and Facebook accounts, and other social media that have incredible learning potentials when used wisely. Whereas the target population of the study was all lecturers in Nigeria universities, this population was delimited by people's accessibility and willingness to respond to an online instrument (Flipped Instruction in Nigerian Universities, FINU) widely distributed through the known social media platforms of universities across the country. Using this non-random sampling technique, the researchers were able to reach out to 213 lecturers from 9 Universities who responded to the FINU instrument. The instrument was validated taking into cognizance content and construct components, and a Cronbach Alpha analysis of the data reported a reliability index of 0.91. Data obtained from the wide scale administration of the instrument were analysed using descriptive statistics (percentages) for the research questions and inferential statistics (PPMC) for the null hypothesis tested. The main findings of the study were: Flipped instruction has power to motivate academics to make use of technologies for research and scholarship; it promotes students' ability to widen creative solutions to everyday problems and engage with the artistic tools at their fingertips; simple technologies help academics to teach with ease and students to learn without stress; and there was a positive relationship between flipped instruction and 21st century learning. Following these findings, the study recommended that academics should endeavor to adopt flipped instruction in order to make learning process more fun and interactive.

Keywords— Flipped instruction; technologies; traditional approach; digital native.

INTRODUCTION

Learning in the 21st century needs technological interventions. This is because large number of students currently in schools are digital natives (those born after 1983). In trying to integrate technology into the teaching-learning process, curriculum and pedagogical approaches need to be modified. Many instructors have passion to use technology for instruction, the problem remains that: conventional systems of education are not flexible enough to accommodate the use of technology to enhance learning and teaching in the classroom; there is a longstanding divide between the traditional teaching methodologies and students with different learning styles and an increasing set of varied digital skills; and the lack of time, readiness and willingness to implement projects that enhance digital literacy skills that offer a basis for strengthening students' ability to compete globally. Content modification and update are not only what matters, but how the instructional process is handled is also critical if we really want to improve the quality of education for our students. 21st century instructional process has a high return on making learner more productive as it makes the learning environment more appealing to potential students in the future.

Use of traditional approach to teach a generation of university students whom have entered college in the last two or three years further complicates issues because the 21st century generation of students are no longer the people our education system was designed to teach (Prensky, 2001). When the traditional approach that is largely teacher-centered and lecture-based is used, especially in the university setting where large classes make it seem impractical, both teacher and student feel a lack of control over the instructional process. But if education is to teach students how to learn, we should not limit ourselves to using educational approaches that no longer seem equitable for the futures of this generation sets of learners. A more personalized student-centered learning experience should be provided. This is because learning is a personal endeavor that involves people, emotions and their various set of backgrounds.

Technology can create a necessary process that accelerates the learning revolution of the 21st century. Understanding how and why we should do this with the technology and digital media today in the classroom is critical in ensuring our students are in fact mastering the material and are gaining the necessary sustainable learning skills increasingly required in our connected world. However, in this century, the traditional approach

to instructional process is increasingly extricating our tech-savvy students from the learning process, which in turn gradually stifles motivation, creativity, divergent thinking and communication among learners and their teachers. This implies that teachers need to integrate technology to facilitate learning and promote digital literacy in the 21st century (Stuntz, 2012). Present researchers' interactions with colleagues show that lecturers do not use the approach putting in mind some technophobia.

A potential cause of lecturers' not using the approach is the general approach to technological use where potential users become overwhelmed by the tools, logistics, and skill sets requirements that these approaches are assumed to demand. When looked at against the resource lean environment of Nigerian universities across these indicators (tools, logistics, & skill), many would become discouraged at the applicability of instructional approaches like the flipped instruction in these environments.

However, one of the strengths of the flipped instruction approach is its flexibility and the potentials it has of turning every technological tool or resource as a potential instructional tool. This includes mobile devices and the social media platforms that define the lifestyle of the digital generation of learners that universities have to educate. Meaning that lecturers have the tools they need to flip the classroom and tap into the resources and technologies (simple technologies) already at hand to enhance the learning experience of their students. If these resources are not utilized, it is probably because the lecturers are not aware of (i) the power that flipped instruction has to harness available every day technological tools and routine online behaviours of learners as instructional resources; (ii) the potential uses of these resources (referred to in this study as simple technologies) as learning resources; (iii) the convergence that exists between flipped instruction and the characteristics of learners born into and living within a digital age. It is against this background that this study intends to determine the influence of flipped classroom using simple technologies by lecturers in Nigerian universities.Acquisition of digital literacy is a fundamental human right and the foundation for lifelong learning. It is essential to social and human development in its ability to transform lives. It is an instrument of empowerment to improve individual's health, income, and relationship with the world. The uses of digital literacy for the exchange of knowledge are constantly evolving, along with advances in technology. From the Internet to exchange of information and files (audio, video, multimedia), the ever-wider availability of communication makes for greater social, economic and political participation. This calls for the use of information and communication technology (ICT) in all life activities which include provision of education. It is a clear indication that the development and implementation of innovative instructional methods into the educational practices of tertiary institutions require a sufficient level of preparedness and willingness for change both from university lecturers and students (Antonova & Merenkov, 2018).

Flip Instruction and its Potentials in the 21st Century Learning

In the last decade, the flipped learning approach has emerged as a workable alternative to traditional instructional approaches that are more of teacher centred. Adopting a flipped method involves students reviewing learning materials before coming to class, whilst in-class time is devoted to exploring topics deeply via collaborative problem-solving and peer instruction. The approach has often been a method to improve teaching and learning outcomes (Paryani & Ramadan-Jradi, 2018). Flipped learning is an instructional method which changes the way students and teachers have traditionally learnt and taught course content, through technology and more innovative use of time. Flipped classes can be a solution to the issues that universities face presently and likely to face in the nearest future (Agirman & Trinh, 2019). Flipped classroom contains two phases, in the first phase, teacher creates short instructional videos and give to students to watch at home. In the second phase, the classroom time is used for practical activities and to deliberate on the gray issues in the videos watched by the students.

This approach helps to effectively utilize lesson time promote learner involvement in the instructional process. The teacher's role goes from content delivery to facilitation and guidance. The teacher uses this time to answer questions and give students more personalised help (Bergman & Sams, 2012). Put differently, flipped instruction also known as backwards classroom, flipped classroom, reverse teaching, and the Thayer method is a form of blended learning approach in which students learn content online or by watching video lectures exposed to them by an instructor, usually at home, and what used to be homework (assigned problems) is now done in class with teachers offering more individualized guidance (guide on the side) and interaction with students, instead of lecturing (Nwosisi, Ferreira, Rosenberg, & Walsh, 2016).

Karagol and Esen (2019) conducted a review of 55 articles on the effectiveness flipped learning, findings from the study reveal that there is a positive effect of the flipped learning approach on academic achievement compared to traditional learning approach irrespective

of the implementation period. In line with the literature reviewed, the study shows that students see real benefits and there are increases in grades. These results suggest that flipped classroom is a worthy consideration for tertiary level students. Flip learning model helps teachers move direct learning out of the large group learning space and move it into the individual learning space with the help of one of several technologies such as handheld devices, laptops, desktop, and so on (Hamdan, McKnight, McKnight & Arfstrom, 2013). A successful implementation of this approach allows instructors to include more active learning elements without surrendering course content (Zappe, Leicht, Messner, Litzinger & Lee, 2009). Similar study conducted by Linga and Wang (2013) shows strong indications of students being appreciative of flip learning initiatives being implemented, even though about 40% of them surveyed stated that it has increased their workload. In addition, there is a strong indication in the survey results that tertiary institutions' students would welcome such new learning approaches being implemented in future.

A study by Antonova and Merenkov, (2018) revealed that for the flipped learning model to be successfully implemented, the following conditions should be met: the existing system of teaching workload allocation should be modified; technical staff supporting the implementation of the model should be appointed; workshops and master classes should be held for lecturers implementing or using the flipped learning model in their practical work. Students experiencing difficulties in adapting to flipped learning model need to be properly guided toward acquiring enough independent learning skills. A systematic study to review empirical evidence investigating the impact of flipped learning on student performance and engagement in tertiary education indicates that 42% of studies reported an increase in student performance with the introduction of flipped learning, while 38% reported no significant difference, and the remainder showed mixed results. For student engagement, 79% of studies reported improvements in student engagement, while 21% reported negative impacts. The results indicate that adopting flipped learning approach may lead to positive impacts (Paryani & Ramadan-Jradi, 2018). As put in another study, flipped instruction leads to better learning results. The approach helps students to effectively learn to acquire skill, knowledge, and also to show a good attitude towards learning (Nwosisi, Ferreira, Rosenberg, & Walsh, 2016).

Due to its pervasiveness in promoting 21st century learning, medical schools in the UK are increasingly implementing a flipped learning approach where students undertake core learning components independently while in-class time is allocated to interactive student-centered activities to strengthen learning (Baig & Mallu, 2017). This leaves adequate time for the instructor to interact with the students during in-class problem solving sessions (Stanley & Lynch-Caris, 2014).

In spite of the several importance and successes recorded in the implementation of flipped instruction across the globe, many lecturers are still not adopting it. Present researchers' interactions with colleagues show that lecturers do not use the approach putting in mind some technophobia. Adoption of flipped instructional approach does not need much media literacy or ICT skills. Most of the young students currently in the tertiary institutions are digital native, one does not have to suffer much to get them on the track. All what is needed is to give it a trial. The widespread use of computers, handheld devices and the internet now introduce creative ways to deliver pre-lecture material while ensuring that the students have completed the pre-lecture assignments before coming to class. The main reason the flipped learning approach is needed in the 21st century is that it supports interactive learning in the classroom. In this setting, the instructor only serves as a coach, guide or mentor to the students, because the basic and necessary content has already been viewed, digested and generally understood by the students through the short videos given to them or online materials they are directed to access before they come to class. This approach may not be the best, but in the 21st century, it is worthy of being adopted because results of anonymous students' surveys and final exam scores verify that this method is effective and well accepted by students where it was used. In a recent study, the instructor observed an increase in student attention to the coursework compared with other courses taught in a more traditional manner by using the flipped learning approach (Stanley & Lynch-Caris, 2014).

Acquisition of digital literacy is a fundamental human right and the foundation for lifelong learning. It is essential to social and human development in its ability to transform lives. It is an instrument of empowerment to improve individual's health, income, and relationship with the world. The uses of digital literacy for the exchange of knowledge are constantly evolving, along with advances in technology. From the Internet to exchange of information and files (audio, video, multimedia), the ever-wider availability of communication makes for greater social, economic and political participation (UNESCO, 2013). This calls for the use of information and communication technology (ICT) in all life activities which include provision of

education. It is a clear indication that the development and implementation of innovative instructional methods into the educational practices of tertiary institutions require a sufficient level of preparedness and willingness for change both from university lecturers and students (Antonova & Merenkov, 2018).

OBJECTIVES OF THE STUDY

This study set out to:

1. Determine how flipped instruction motivates lecturers to make use of simple technologies for learning;
2. Determine the potential importance of flipped instruction;
3. Ascertain the potential uses of simple technologies for learning;
4. Find out whether there is a relationship between flipped instruction and 21st century learning.

Research Questions

The following questions are raised to guide the study:

1. How does flipped instruction motivate lecturers to make use of simple technologies for learning?
2. What are the potential importance of flipped instruction?
3. What are the potential uses of simple technologies for learning?
4. Is there any relationship between flipped instruction and 21st century learning?

Hypothesis of the Study

The following null hypothesis would be tested:

Ho1: There is no significant relationship between flipped instruction and 21st century learning.

METHODOLOGY

The research design adopted for this study was a descriptive of a survey type design. This type of research design enables researchers to utilize data collected the way it is without any manipulation. All lecturers in the Nigerian Universities formed the population of the study. Convenience sampling technique was used to consider 213 respondents across Nigerian Universities as sample for the study. The technique enables researchers to make selection from part of the population that is close to hand.

Online questionnaire was developed by the researchers using Google forms and links to the online survey questionnaire was shared via WhatsApp groups of Nigerian university lecturers. Given that link to the instrument was shared across social media platforms (mainly WhatsApp) of University academic staff, the study anticipated that the respondents would be university lecturers with a significant online presence. This choice is considered appropriate because they are

those that are most likely be adept and regular at the use of the simple technology tools that this study is arguing have potential instructional value. The technique helps to make selection from part of the population that is close to hand. At the time the responses were collated, 213 respondents had answered items in the instrument, FINU. Hence, the study's non-purposive sample was 213.

The researchers' structured instrument pegged: "flipped instruction in Nigerian Universities" (FINU) was used for the study. The questionnaire contained four sections. Section A, B, C, and D were four Likerts scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD), seeking information respectively on how flipped instruction encourages lecturers to make use of simple technologies, potential importance of flipped instruction, features of flipped instruction, features of 21st century learning as well as the potential importance of simple technologies for learning.

To ensure face and content validity, the instrument was validated by 3 experts (2 specialists in educational technology and 1 in curriculum and instructions). Pilot study was conducted, and the reliability index of 0.91 was obtained using Cronbach Alpha at 0.05 error level. The data were analyzed using descriptive statistic (percentages) to provide answers to the questions raised and inferential statistics (PPMC) was used to test the null hypothesis of the study.

RESULTS

RQ1: How does flipped instruction motivate lecturers to make use of simple technologies for learning?

Table1: Flipped instruction has power to encourage lecturers:

S.N.	ITEMS	SA	A	D	SD
1	Have a smartphone capable of connecting to the Internet	53.1	41.3	1.9	3.8
2	Have an active email account	28.6	71.4	-	-
3	Possess proficiency to send and receive files from email account	45.1	48.9	0.9	5.6
4	Have a Facebook account	49.3	46.9	1.9	1.9
5	Possess proficiency to send and receive files from Facebook account	52.6	44.1	.5	2.8
6	Have a WhatsApp account	35.7	57.3	7.0	-
7	Have the ability to exchange files via WhatsApp account	50.7	43.7	0.5	5.2
8	Possess proficiency to use search engines such as Google to source for information	38.0	52.1	9.9	-
9	Have skills to access YouTube videos	36.6	62.9	-	0.5
10	Possess proficiency to produce short videos using handheld devices or camera	49.8	48.8	0.9	0.5

In line with the data gathered as presented in the table 1, flipped instruction has power to motivate academics to make use of technologies for research and scholarship. Based on the results, majority of the respondents representing 53.1% strongly agreed that embracing flipped instruction motivates academics to at least possess a smartphone capable of connecting to the Internet. It is also the opinion of most of the respondents that flipped instruction encourages lecturers to have an active email account and possess proficiency to send and receive files from email accounts. In line with opinion of majority of the respondents, flipped instruction motivates academics become digitally literates. Digital literacy here includes possession of: Facebook account; proficiency to send and receive files from Facebook account; a WhatsApp account; the ability to exchange files via WhatsApp account; proficiency to use search engines such as Google to source for information; skills to access YouTube videos; and proficiency to produce short videos using handheld devices or camera.

RQ2: What are the potential importance of flipped instruction?

Table2: Potential Importance of Flipped Classroom

S.N.	ITEMS	SA	A	D	SD
1	When students come prepared to class, there is little to or no need for teachers to address content related questions. Instead, instructors can support students in better understanding the concepts through practical application.	73.2	24.4	0.5	1.9
2	The flipped classroom gives more freedom to instructors to decide upon how much time to spend with each group of students.	64.3	34.3	0.5	0.9
3	It offers more transparency for parents, who will know exactly what their subjects are preparing for at school. This can also improve the communication between parents and instructors.	68.5	30.0	1.4	-
4	When students watch or listen to lectures at home, and then solve problems and apply the new knowledge in the classroom, they get less frustration with their homework.	35.7	62.9	0.5	0.9
5	When students do not understand a new concept, they can ask questions and get immediate targeted answers during the lecture	45.5	53.2	0.9	0.5
6	The time spent in the classroom becomes not enough for all the conversations and collaboration that inevitably spur from exploring subjects in a deeper manner. Flipped instruction provides remedy to that problem.	27.2	64.8	7.0	0.9
7	Students who are absent due to illness or any other reason,	56.8	41.8	0.9	0.5
	can catch up with their peers faster and easier with the flipped classroom model than with the standard one.				
8	Referring students to e-resources make them become more aware of their place in a diverse world.	23.0	67.1	8.5	1.4
9	Linking students to an international library promotes their ability to tackle problems on a global scale	39.4	53.7	0.9	0.9
10	Flipped instruction helps to prepare students for the rapidly globalizing economy and the growing need for worldwide collaboration.	49.8	48.4	1.9	-
11	Flipping classroom promotes students' ability to widen creative solutions to everyday problems and engage with the artistic tools at their fingertips.	69.0	29.1	0.5	1.4

On the potential importance of flipped instruction, results from this study revealed based on the opinion of majority of the respondents that flipped instruction provides lecturers with better opportunity to guide students' understanding of concepts and take them through practical sections. In a situation where class is not large, flipped classroom gives more freedom to instructors to group the students and decide upon how much time to spend with each group of students. 68.5%, representing majority of the respondents strongly agreed that flipped instruction helps parents to monitor exactly what their subjects are preparing for at school. This can also improve the communication between parents and lecturers. 62.9% of the respondents agreed that when students are exposed to video or an audio package prior to classroom session, it enables them become more prepared and less frustrated during the lecture.

In line with opinion of 56.8% of the respondents, flipped instruction offers students who are absent due to illness or any other reason with an opportunity to catch up with their peers faster and easier through the help of take-home packages (videos, audios, etc.). 67.1%, representing majority of the respondents opined that referring students to e-resources make them become more aware of their place in a diverse world. Moreover, 53.7% of the respondents agreed that linking students to an international library promotes their ability to tackle problems on a global scale. 49.8% of the respondents strongly agreed that flipped instruction helps to prepare students for the rapidly globalizing economy and the growing need for worldwide collaboration. Additionally, it is one of its potential importance that flipping classroom promotes students' ability to come up with more ways of providing solutions to everyday problems and engage with the artistic tools at their fingertips. This is the opinion of 69% representing majority of the respondents.

RQ3: What are the potential uses of simple technologies for learning?

Table3: Potential Uses of Simple Technological Tools

S.N.	ITEMS	SA	A	D	SD
1	Enable students to learn at their own pace	62.9	37.1	-	-
2	Help instructors to teach with ease and students to learn without stress	51.6	48.4	-	-
3	Students like technology, that alone motivates their learning process	63.4	36.6	-	-
4	Help lecturers deal with overcrowd lecture venues	72.3	27.7	-	-
5	Facilitate individualized learning	53.5	46.5	-	-
6	Technologies are learner-centred enabled	59.2	33.8	7.0	-
7	Help simplify access to educational resources	36.2	63.8	-	-
8	Promote lifelong learning	39.0	53.5	7.5	-
9	Enable correspondence course programme(s)/distance education	17.4	82.6	-	-
10	Ease collaborative learning among learners	42.7	57.3	-	-

It is obvious that technology plays an important role in teaching and learning process. Among the potential uses of simple technological tools as indicated by results in the table 3 include the following: technologies enable students to learn at their own pace (asynchronous learning), this is in line the opinion of 62.9%, representing majority of the respondents. 51.6%, 63.4%, 72.3%, 53.5% and 59.2% respectively, opined that technologies motivate students' learning, help lecturers in handling overcrowded lecture venues, facilitate individualized learning, and are learner-centred enabled. Moreover, 63.8%, 53.5%, 82.6%, and 57.3% respectively are of the opinion that simple technological tools help simplify access o educational resources, promote lifelong learning, promote distance education, and collaborative learning among students.

Hypothesis Testing

Ho1: There is no significant relationship between flipped instruction and 21st century learning.

Table 4: PPMC Result of the Convergence between Flipped Instruction and 21st Century Learning

Variables	Mean	N	Df	R	p-value	Decision
21st Century Learning	55.19	213				
			211	0.70	0.00	Sig.
Flipped Instruction	55.48	213				

Table 4 showed Pearson correlation result in respect of the null hypothesis. The mean scores for the flipped instruction and 21st century learning were respectively 55.48 and 55.19. The r (211) = 0.70, p<0.05 (two tailed) revealed that there was significant relationship between flipped instruction and 21st century learning.

DISCUSSION OF FINDINGS

Based on the findings from this study, flipped instruction does not only support learning, it also motivates lecturers/instructors make use of technologies for research and scholarship. This is for the fact that technology can create a necessary process that accelerates the learning revolution of the 21st century (Stuntz, 2012). Acquisition of digital literacy is a fundamental human right and the foundation for lifelong learning. It is essential to social and human development in its ability to transform lives. It is an instrument of empowerment to improve individual's health, income, and relationship with the world (UNESCO, 2013). Results indicates that, to be digitally literate, an instructor needs to at least possess a smartphone capable of connecting to the Internet, have an active email account and possess proficiency to send and receive files from email accounts. In addition to possession of technology, an instructor should have proficiency in using social media. This includes possession of: Facebook account; proficiency to send and receive files from Facebook account; a WhatsApp account; the ability to exchange files via WhatsApp account; proficiency to use search engines such as Google to source for information; skills to access YouTube videos; and proficiency to produce short videos using handheld devices or camera. These findings are in line with the call made by Stuntz (2012) that instructors need to integrate technology to facilitate learning and promote digital literacy in the 21st century.

On the potential importance of flipped instruction, results from this study revealed that flipped instruction provides lecturers with better opportunity to guide students' understanding of concepts and take them through practical sections. Flip learning also helps teachers move direct learning out of the large group learning space and move it into the individual learning space with the help of one of several technologies such as handheld devices, laptops, desktop, and so on (Hamdan, McKnight, McKnight & Arfstrom, 2013). The lecturer's role goes from content delivery to facilitation and guidance. The lecturer uses this time to answer questions and gives students more personalised help (Bergman & Sams, 2012). In a situation where class is not large, flipped classroom gives more freedom to instructors to group the students and decide upon how much time to spend with each group of students.

This finding is in agreement with the assertion made by Baig and Mallu (2017) that flipped classroom helps students undertake core learning components independently while in-class time is allocated to interactive student-centered activities to strengthen learning. This leaves adequate time for the instructor to interact with the students during in-class problem solving sessions (Stanley & Lynch-Caris, 2014). It was also found that flipped instruction helps parents to monitor exactly what their subjects are preparing for at school. Results show that when students are exposed to

video or an audio package prior to classroom session, it enables them become more prepared and less frustrated during the lecture. Moreover, flipped instruction offers students who are absent due to illness or any other reason with an opportunity to catch up with their peers faster and easier through the help of take-home packages (videos, audios, etc.). Majority of the respondents also believed that referring students to e-resources and linking them to international libraries promotes their ability to tackle problems on a global scale, and also make them become more aware of their place in a diverse world. This is one of the avenues through which flipped instruction makes it possible for learning revolution of the 21st century to be accelerated (Stuntz, 2012).

It is obvious that technology plays an important role in teaching and learning process. Among the potential uses of simple technological tools as the study found, include: technology enables students to learn asynchronously; it helps lecturers in handling overcrowded lecture venues, facilitate individualized learning, and are learner-centred enabled; and it helps simplify access to educational resources, promote lifelong learning, promote distance education, and collaborative learning among students.

On the areas of convergence between flipped instruction and 21st century learning, it was found that there was a significant positive relationship between the two. Areas of agreement include: promotion of critical thinking skills; encouraging creativity; offering opportunities for collaborative learning; improving digital literacy; developing proficiency and fluency in using technology; encouraging students to manage, analyze and synthesize multiple flow of concurrently obtainable information from variety of sources; promoting media driven learning; encouraging individualized learning; promoting personalized learning; encouraging learner-centred approach to instruction; recognizing innovations in the learning process; making learning environment flexible; promotion of lifelong learning; facilitating effective time-management; improving problem-solving skills; and appreciating learning in a blended environment.

Findings from this study are in line with the position of Stuntz (2012) that flipped instruction and 21st century learning are in agreement because both promote instructional process that captures the minds of tech-savvy students. This gradually reinforces motivation, creativity, divergent thinking and effective communication among learners and their instructors. In tandem with the assertion, a study by Stanley and Lynch-Caris, (2014) affirmed that there was a significant increase in students' attention to classroom activities when flipped approach was used to handle a tech-savvy set of students compared to their performance when taught using traditional approach.

CONCLUSION

It is clear based on the results from this study that flipped instruction is an important pedagogical approach in increasing student achievement, improving student motivation, providing more time in the classroom for educators and students to ask higher order questions and receive on the spot feedback. The flipped classroom can indeed create rich and meaningful learning activities. Students of the 21st century are more engaged with technology than the previous generation. The hope is that with the development of technology, education also developed and technology can be used as a source to facilitate the instructional process in line with the 21st century learning. A strong correlation between flipped classroom and 21st century learning as revealed by the findings of this study indicates that flipped instruction is a new learning approach applied in current education and it becomes an alternative model to develop the quality of teaching and learning in universities. The learning process will take place not only in the class but also outside it; students will take responsibility for their own learning and learn at their own pace.

RECOMMENDATIONS

Academics should endeavor to adopt flipped instruction in order to make learning process more fun and interactive.

REFERENCES

[1] Agirman, E. & Trinh, C. (2019). The flipped learning approach in undergraduate finance education: A literature review. Atatürk: Atatürk University Scientific Research Coordination Unit with the project SCD-2019-6878.

[2] Antonova, N. L. & Merenkov, A. V. (2018). Flipped learning in higher education: Problems and contradictions. Integration of Education. , 22(2):237-247.

[3] Baig, M. Sh. & Mallu, H. S. (2017). Advances in medical education and practice: what millennial medical students say about flipped learning. Advances in Medical Education and Practice, 8: 681–682.

[4] Bergman, J. & Sams, P. (2012). Flip Your Classroom: Reach Every Student in Every Class, Every Day. Alexandria: VA: International Society for Technology in Education.

[5] Hamdan, N., McKnight, P., McKnight, K. & Arfstrom, K. M. (2013, Jan 06). A Review of Flipped Learning. Retrieved from Retrieved

August, 31, 2020, from http://flippedlearningorg/review

[6] Karagol, I. & Esen, E. (2019). The effect of flipped learning approach on academic achievement: A meta-analysis study. Hacettepe University Journal of Education, , 34(3), 708-727.

[7] Linga, P. & Wang, Ch-Hw. (2013). Flipped Class Learning in a Large Class Setting. Singapore: Dept of Chemical & Biomolecular Engineering.

[8] Nwosisi, Ch., Ferreira, A., Rosenberg, W. & Walsh, K. (2016). A Study of the Flipped Classroom and Its Effectiveness in Flipping Thirty Percent of the Course Content. International Journal of Information and Education Technology, 6(5), 348-357.

[9] Paryani, S. & Ramadan-Jradi, R. (2018). The impact of flipped learning on student performance and engagement: A systematic literature review. International Journal of Learning and Teaching, 5(1), 30-37.

[10] Prensky, M. . (2001). Digital Natives, Digital Immigrants . MCB University Press, 9: 5.

[11] Stanley, R. & Lynch-Caris , T. (2014). An Innovative Method to Apply the Flipped Learning Approach in Engineering Courses Via Web Based Tools. Proceedings of the 2014 ASEE Gulf-Southwest Conference Organized by Tulane University (pp. 1-10). New Orleans, Louisiana: American Society for Engineering Education.

[12] Stuntz, D. F. (2012). Digital Literacy, CALL and Flipped Learning: An overview of technology use surveys and a rationale for the development of Flipped Learning-based CALL courses that enhance learning and digital skills. London: Routledge.

[13] UNESCO. (2013). United Nations Literacy Day. New York City: UNESCO.

[14] Zappe, S, Leicht, R., Messner, J., Litzinger, T & Lee H. W. . (2009). Flipping the classroom to explore active learning in a large undergraduate course. American Society for Engineering Education Annual Conference & Exhibition. American Society for Engineering Education.