TEACHER EDUCATORS' PERCEPTION TOWARDS THE EFFECTS AND CHALLENGES OF FLIPPED CLASSROOMS IN TEACHING

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Abstract

The major purpose of this paper is to study teacher educators' perception towards the effects and challenges of flipped classrooms in teaching. The study was conducted with a descriptive research method. Three sample education degree colleges from Yangon Region were selected. In this study, the subjects were teacher educators from Yankin Education Degree College, Thingangyun Education Degree College, and Hlegu Education Degree College from Yangon Region. The subjects, (127) teacher educators, were chosen from three education degree colleges. The instrument used in this study was a questionnaire that was constructed based on better performance of flipped classroom, and customized, active, and engaging environment of flipped classroom developed by Bergmann and Sams (2012), and challenge of flipped classroom in teaching (operational challenge and faculty challenge) developed by Betihavas, Bridgman, Kornhaber and Cross (2016). This questionnaire consists of (40) items with a five-point Likert-Scale. For obtaining questionnaire reliability, a pilot test was administered. The internal consistency (Cronbach's Alpha) was (.918). In order to describe the extent of the study teacher educators' perception towards the effect and challenge of flipped classroom, mean, standard deviation, and percentage were used. According to the study, the mean score of customized, active, and engaging environment, (M = 39.92, SD = 2.62) was higher than that of better performance (M = 39.69, SD = 2.85). The mean score of the operational challenge (M = 34.57, SD = 4.72) was higher than that of the faculty challenge, (M = 33.38, SD = 4.90). Research findings indicated that some of the teacher educators who received treatment by using flipped classrooms had a good perception to use it in higher education.

Keywords: Challenge, Effect, Flipped Classroom, Perception, Teaching

Introduction

Education is an instrument to support the creative development of any attainable and sustainable society in the world. Education is also one field that is constantly changing. Education should be well understood and implemented in modern mass society. Education should provide individual learners with differentiated educational opportunities to develop the present features of the particular community. Therefore, learners will acquire the essential competencies to support and maintain the welfare of a safe and healthy society.

Technology is growing rapidly nowadays. Technology is a tool used in education and not an end in itself. The vision of Myanmar in the education sector is to create an education system that can generate a learning society capable of facing the challenges of the Knowledge Age. The promise of educational technology lies in what educators do with it and how it is used to best provide the students' needs. Technology in the twenty-first century puts instantaneous access to information and the Internet can be handily accessed through numerous technology tools such as laptops, computers, and smartphones (Fu, 2013).

A widespread push towards the implementation of technology in education is present throughout the country. Flipped classroom approach has become a popular strategy in higher education around the world. The basic notion of flipped classroom strategy is to deliver the teacher's lectures before class through online videos in order to free-up the in-class time for active learning and problem-solving activities. As students' learning habits change with their interests in new technologies, education must adapt to match those learning habits.

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Flipped classroom strategy enables teachers to spend more in-class time on student-centered instructions such as group discussion and teachers' individual assistance that student's perceptions and engagement towards flipped classroom approach are generally positive and that some indirect educational outcomes such as improving students' communication skills, promoting more independent learners and changing in learning habits (e.g., revisit the online learning materials before examination) can result from the application of this instructional strategy.

In 2000, Lage, Platt and Treglia introduced the idea of using technology to flip a traditional classroom environment. This method is known as the flipped classroom, inverted classroom or reverse instruction, among others, what is traditionally done in class is switched with what is traditionally done for homework. Recently, the flipped classroom strategy has grown in popularity in the basic and higher education. By using flipped classroom, it can save time, can increase discussion period, can improve interaction between teacher and students, can cultivate presentation skill, and can share the learned information.

Purposes of the Study

The main purpose of this paper is to study the teacher educators' perception towards the effects and challenges of flipped classrooms in teaching.

The specific objectives of the study are as follows:

- To investigate the teacher educators' perception towards the effects of flipped classroom
- To study the teacher educators' perception towards the challenges of flipped classrooms
- To compare the teacher educators' perception towards better performance of flipped classroom and their perception towards the customized, active, and engaging environment of the flipped classrooms
- To compare the teacher educators' perception towards operational challenge of the flipped classroom and their perception towards faculty challenge of flipped classrooms
- To give suggestions for improving the flipped classroom strategy based on the results of this study

Research Questions of the Study

The research questions of the study are described as follows:

Q1: To what extent do the teacher educators have the perception towards the effects of the flipped classrooms?

Q2: To what extent do the teacher educators have the perception towards the challenges of the flipped classrooms?

Q3: Which is more effective in better performance of flipped classroom and customized, active, and engaging environment of flipped classroom?

Q4: Which is the more challenging the operational challenge of the flipped classroom and the faculty challenge of a flipped classroom?

Definition of Key Terms

The five key terms are described as follows:

Challenge. Challenge is a perception that a task or situation exceeds one's comfort zone or capacities; thus, the challenge will require a person to find something extra. Challenge should

ideally trigger positive emotions such as excitement and confidence as well as the trepidations of fear doubt (Neill, 2002, as cited in Onyeachu, 2008).

Effect. Effect means having power to produce, or producing a desired result (Cruishank & Bainer, 1999).

Flipped Classroom. Flipped classroom is a setting where students take charge of their own learning and this increases communication and contact time between students and teachers (Bergmann & Sams, 2012).

Perception. Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world (Lindsay & Norman, 1977, as cited in Picken, 2005).

Teaching. Teaching refers as an activity or process which is related with the impact of certain specific knowledge or skill, guiding and assessing, with the aim of assisting students to learn effectively (Sang, 2003).

Scope of the Study

The scope of the study is presented as follows:

- This study is geographically restricted to Yangon Region.
- The participants in this study are 127 teacher educators from the Yankin Education Degree College, Thingangyun Education Degree College, and Hlegu Education Degree College during the period within the academic year 2021-2022.

Review of Related Literature

Philosophical and Theoretical Foundations of Flipped Classroom

This study was based on philosophy of cognitivism, constructivist learning theory, and Vygotsky's social development theory.

Cognitivism. Cognitivism emphasizes the role that environmental conditions play in facilitating learning. Instructional explanations, demonstrations, illustrative examples and matched non-examples are all considered to be instrumental in guiding learning. However, the active nature of the learner is perceived quite differently. The cognitive approach focuses on the mental activities of the learner that lead up to a response and acknowledges the processes of mental planning, goal-setting and organizational strategies (Shuell, 1986, as cited in Presmeg, 2006). Cognitive theories contend that environmental cues and instructional components alone cannot account for all the learning that results from an instructional situation.

Additional key elements include the way that learners attend to code, transform, rehearse, store and retrieve information. Learners' thoughts, beliefs, attitudes and values are also considered to be influential in the learning process (Winne, 1985, as cited in Presmeg, 2006). Therefore, this study was based on the philosophy of cognitivism, particularly the ideas of the acquisition of knowledge and internal mental structures, the ideas of the way that learners attend to code, transform, rehearse, store and retrieve information, the ideas of how information is stored in memory and how to apply knowledge in different contexts and the ideas of practice with corrective feedback.

Constructivist Learning Theory. Constructivist learning emphasizes learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner (Elliott, Kratochwill, Cook, & Travers, 2000). Learners are expected to make their own judgments of what they are experiencing. E-learning programmes often ask to carry out tasks, to read and consider evidence and to explore resources. The new experiences will

need to be related to the existing knowledge and understanding. The teacher's role is often to facilitate the learning through questions or discussion. In active learning method based on constructivist theory, the students take an active role. Therefore, this study was based on the emphasis of constructivism, especially the ideas of teaching perspective, the ideas of the ways in which students generate their own understanding, the ideas of opportunities for the learners to question, probe and ponder and the ideas of creating situations in which the learners and the teacher work together to solve problems, engage in inquiry and construct knowledge.

Vygotsky's Social Development Theory. Vygotsky explains that learning is influenced when children are engaged with individuals that possess the mathematical knowledge they are developing, labeling this as the social development theory. This theory introduces three key ideas: social interaction, the more knowledgeable other and the zone of proximal development (Vygotsky, 1978, as cited in Nábělková, 2014). Vygotsky suggests that social interaction plays a fundamental role in cognitive development, children's cognitive development first happens with the interactions between two people followed by an individual making sense of knowledge on their own and interaction with a more knowledgeable other helps with this development and providing the interaction is within the child's zone of proximal development. Therefore, Vygotsky's social development theory was taken into account for this study.

View on Flipped Classroom

In recent years, the flipped classroom has become one of emerging technologies in education and it can be a standard of teaching-learning practice to foster students' active learning in higher education (Hamdan, McKnight, McKnight, & Arfstrom, 2013). Flipped classroom is also known as a student-centered approach to learning where the students are more active than the instructor in the classroom activity. In this case, the teacher acts as a facilitator to motivate, guide, and give feedback on students' performance (Bergmann & Sams, 2012). By flipping the class, the students will not spend so much time on listening to long lectures in the classroom but will have more time to solve problems individually or collaboratively through distance learning with peers.

Flipped Classroom in Higher Education

For higher education courses, flipped classroom has become the reality characterized by continuous investigation and debates of the benefits, potential and effectiveness to transform and improve the learning process. New, highly interactive, meaningful and student-centered flipped classroom environments have been developed fostered by the current and advanced technologies. The student is forced to approach with more responsibility towards flipped courses with continuous and active involvement. At home, students are able to pause and rewind the lecture to go back, find unknown answers and review confusing information (Bergmann & Sams, 2012). Students can understand well the lesson by watching the video lessons repeatedly.

Different media or method combinations and person to person classroom activities, and distance learning system base on self-paced learning. The primary changes in the roles and expectations of faculty, students, and administrators are presumed. As regards the student population, the learning environment drastically differs from face-to-face one. The student is forced to approach with more responsibility towards flipped courses with continuous and active involvement. Fu (2013) notes that students who live in the current digital age can easily access educational materials anytime, anywhere, using educational technology tools. Therefore, it became necessary based on the educational universities or colleges in the educational field to seek this development and take advantage of new technologies and integrate them into education.

Effectiveness of Flipped Classroom

According to Bergmann and Sams (2012), the flipped classroom is inverted from the traditional learning experience. Lectures are shared outside of class time for individual review as homework, and classroom time is reserved for students to complete assignments and activities. The main goals of flipping are:

- to make the classroom an active learning environment,
- to enable students to learn at their own pace, and
- to give the instructor more time to teach each student individually, rather than the class as a whole.

Flipping enhances the learning experience. Through student-led active learning, coupled with peer-to-peer collaboration and individualized guidance, flipping a classroom enables teachers to adapt each lesson to the individual needs of their students. Teachers can flip the classrooms on the basis of the handful of key effects such as:

1. Flipping allows students to learn at their own pace,
2. Flipped learning is customized, active, and engaging,
3. Flipped lecture videos help student review for exams,
4. Flipped content can be richer through continuous improvement, and
5. Students in flipped classrooms perform better.

Challenges of Using Flipped Classroom in Education

According to Betihavas, Bridgman, Kornhaber and Cross (2016), the challenges were categorized into two main themes for the teachers, namely, faculty-related challenges and operational challenges. The two faculty challenges are related to teachers' familiarity of flipped classroom approach and the preparation of flipped classroom. There are four operational challenges identified in flipped classrooms. The four operational challenges are students' IT resources, monitoring students outside class, teachers' IT skills and institutional supports.

Method

Research Design

The research design for this study was a descriptive research design. In this study, the quantitative research method was used to collect, analyze, and summarize the required data for this study.

Procedure

The problem was first formulated. Secondly, the literature related to this study was sought out through reading books and Internet sources. Thirdly, a set of questionnaire was constructed and four experts' review was conducted. Then, some modifications were made. And, a pilot testing was conducted. The internal consistency of the questionnaire was (.918). The participants were selected and the modified instruments were distributed to all the participants. After the data collection was done, the data were analyzed.

Instrument

In this study, the instrument was the questionnaire for the teacher educators' perception towards the effects and challenges of flipped classrooms in teaching. The items in the questionnaire for this study were designed by the adaption of effectiveness of flipped classroom by better performance of flipped classroom and customized, active, and engaging environment of flipped classroom developed by Bergmann and Sams (2012) and challenge of flipped classroom in teaching (operational challenge and faculty challenge) developed by Betihavas, Bridgman,

Kornhaber and Cross (2016). This research questionnaire was modified to suit the purpose of the study with the advice and guidance of the supervisor.

It was constructed based on the four major dimensions. There were (40) five-point Likert-scale items to examine the teacher educators' perception towards the effect and challenge of flipped classroom in teaching. Each item in the questionnaire was described by five responses (strongly disagree = 1, disagree = 2, undecided = 3, agree = 4, and strongly agree = 5).

Population and Sample Size

All participants were teacher educators from Education Degree Colleges in Yangon. Yankin Education Degree College, Thingangyun Education Degree College, and Hlegu Education Degree College were selected as the sample Colleges. The total number of participants was 127.

Data Analysis

Data collected through questionnaires were analyzed quantitatively by using the descriptive statistics. In order to examine the teacher educators' perception towards the effects and challenges of flipped classrooms in teaching, mean, standard deviation, frequency, and percentage were used. The obtained data were analyzed and interpreted in align with the basic research questions.

Findings

Research Findings for Teacher Educators' Perception towards the Effect of Flipped Classroom

Table 1 presents the mean scores of teacher educators' perception towards the effect of flipped classroom.

Table 1 Mean Scores of Teacher Educators' Perception towards the Effect of Flipped Classroom

Dimension	*N*	Mean	Standard Deviation	Minimum	Maximum
Better Performance	127	39.69	2.85	29	50
Customized, Active, and Engaging Environment	127	39.92	2.62	30	50

According to the data in Table 1, the mean score of the perception towards better performance was (39.69) and the standard deviation was (2.85). The mean score of the perception towards the customized, active, and engaging environment of flipped classroom was (39.92) and the standard deviation was (2.62). Then, the mean scores of the two dimensions of teacher educators' perception towards the effect of flipped classrooms were compared. By comparing the mean scores, teacher educators' perception towards the effect of customized, active, and engaging environment of flipped classroom was higher than that of better performance.

Table 2 shows the percentage levels of teacher educators' perception towards the better performance of flipped classroom.

Table 2 Percentage Levels of Perception towards Better Performance of Flipped Classroom

Level of Perception towards Better Performance of Flipped Classroom	Score	No. of Teacher	Percentage (%)
Low	x < 36.84	13	10
Moderate	36.84≤ x ≤42.54	114	90
High	x > 42.54	0	0
Total		127	100

According to the data in Table 2, most of teacher educators' perception towards better performance of flipped classroom was at the moderate level.

Table 3 presents the percentage levels of teacher educators' perception towards customized, active and engaging environment of flipped classroom.

Table 3 Percentage Levels of Perception towards Customized, Active, and Engaging Environment of Flipped Classroom

Level of Customized, Active and Engaging Environment	Score	No. of Teacher	Percentage (%)
Low	x < 37.30	16	13
Moderate	37.30≤ x ≤42.54	97	76
High	x > 42.54	14	11
Total		127	100

According to the data in Table 3 most of teacher educators' perception towards customized, active, and engaging environment of flipped classroom was at the moderate level.

Based on the data in Table 1, the comparison of the mean scores of teacher educators' perception towards the challenge of flipped classroom in terms of the two dimensions is presented in Figure 1.

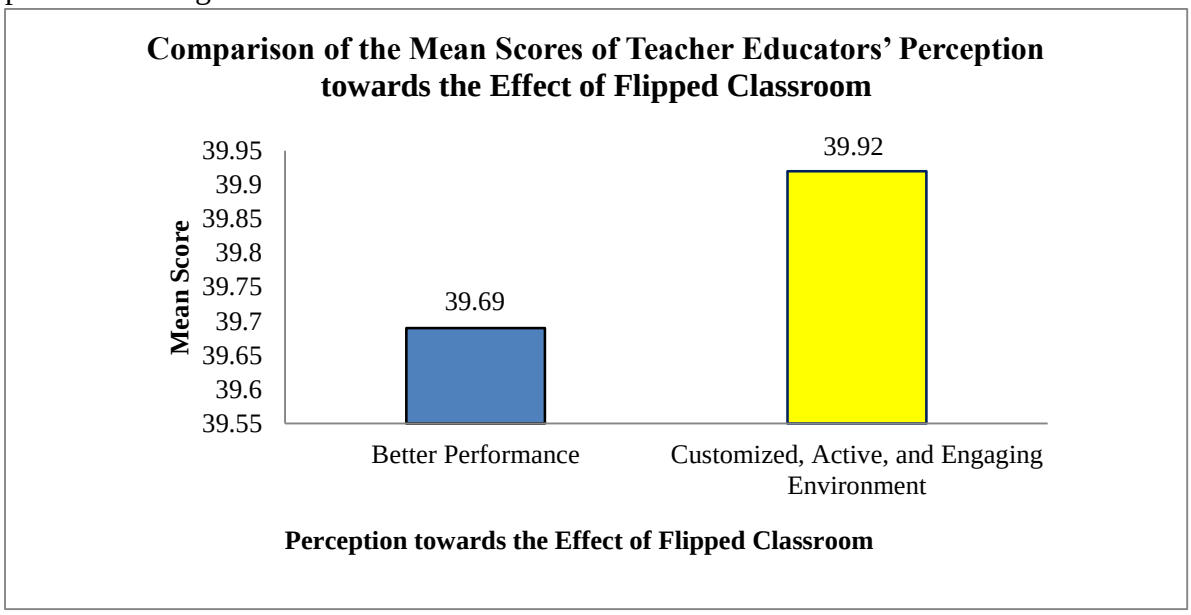

Figure 1 Comparison of the Mean Scores of Teacher Educators' Perception towards the Effect of Flipped Classroom

Research Findings for Teacher Educators' Perception towards the Challenge of Flipped Classroom

Table 4 presents the mean scores of teacher educators' perception towards the challenge of flipped classroom.

Table 4 Mean Scores of Teacher Educators' Perception towards the Challenge of Flipped Classroom

Dimension	*N*	Mean	Standard Deviation	Minimum	Maximum
Operational Challenge	127	34.57	4.72	21	49
Faculty Challenge	127	33.38	4.90	22	46

According to the data in Table 4, the mean score of the perception towards operational challenge of flipped classroom was (34.57) and the standard deviation was (4.72). The mean score of the perception towards faculty challenge of flipped classroom was (33.38) and the standard deviation was (4.90). Then, the mean scores of the teacher educators' perception towards the challenge of flipped classroom were compared. By comparing the mean scores, the teacher educators' perception towards operational challenge of flipped classroom was higher than that of faculty challenge.

Table 5 shows the percentage levels of teacher educators' perception towards the operational challenge of flipped classroom.

Table 5 Percentage Levels of Perception towards Operational Challenge of Flipped Classroom

Level of Operational Challenge	Score	No. of Teacher	Percentage (%)
Low	$x < 29.85$	13	10
Moderate	$29.85 \leq x \leq 39.29$	92	73
High	$x > 39.29$	22	17
Total		127	100

According to the data in presented in Table 5, most of teacher educators' perception towards operational challenge of flipped classroom was at the moderate level.

Table 6 shows the percentage levels of teacher educators' perception towards the faculty challenge of flipped classroom.

Table 6 Levels of Perception towards Faculty Challenge of Flipped Classroom

Level of Faculty Challenge	Score	No. of Teacher	Percentage (%)
Low	$x < 28.48$	23	18
Moderate	$28.48 \leq x \leq 38.28$	85	67
High	$x > 38.28$	19	15
Total		127	100

According to the data in Table 6, most of teacher educators' perception towards faculty challenge of flipped classroom was at the moderate level in.

Based on the data presented in Table 4, the comparison of the mean scores of teacher educators' perception towards the challenge of flipped classroom in terms of the two dimensions is presented in Figure 2.

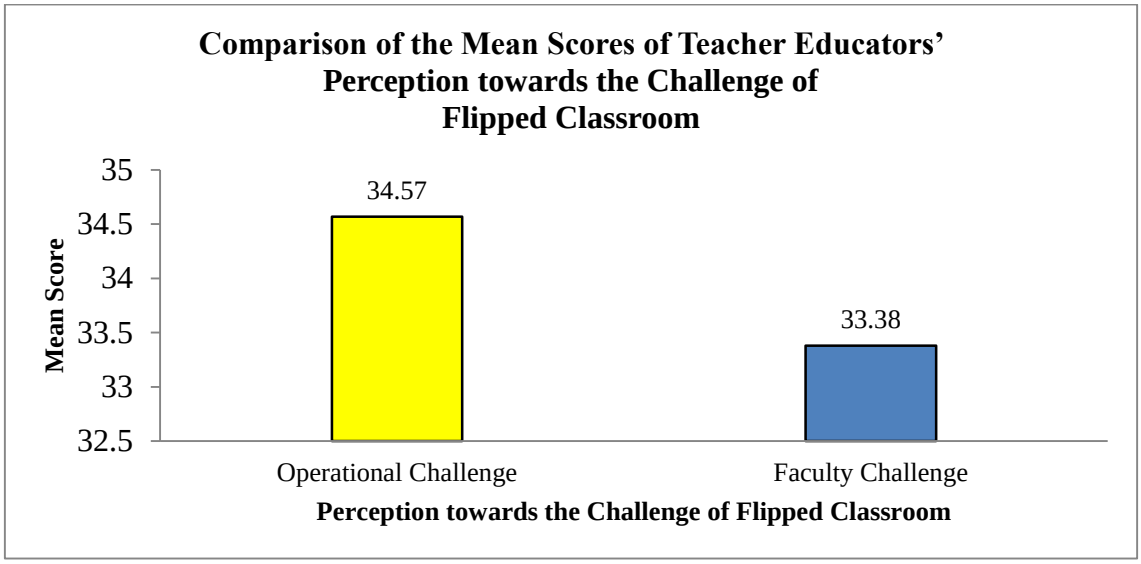

Figure 2 Comparison of the Mean Scores of Teacher Educators' Perception towards the Challenge of Flipped Classroom

Summary of Research Findings

To sum up, the findings for teacher educators' perception towards the effects and challenges of flipped classrooms was generalized.

1. For the comparison of teacher educators' perception towards the effects of the flipped classrooms, the mean score of teacher educators' perception towards the customized, active, and engaging environment of flipped classroom was higher than that of the teacher educators' perception towards better performance.
2. For the comparison of teacher educators' perception towards the challenges of the flipped classrooms, the mean score of teacher educators' perception towards the operational challenge of flipped classroom was higher than that of teacher educators' perception towards the faculty challenge of the flipped classroom.

Discussion

Based on the findings of the study, the following discussion was made.

For the first research question, the findings of teacher educators' perception towards the better performance and customized, active, and engaging environment of flipped classroom in teaching were discussed. The mean score of teacher educators' perception towards the effect of better performance was (39.69) and the standard deviation was (2.85). The mean score of teacher educators' perception towards the effect of the customized, active, and engaging environment of flipped classroom was (39.92) and the standard deviation was (2.62). According to the data, most teacher educators accepted that using flipped classrooms can perform in the teaching and learning process. The use of flipped classroom increases trainees' communication skills and improve their performance. Some teachers accepted student teachers felt confident in flipped classroom environment because they had participated actively.

For the second research question, the findings of the percentage of teacher educators' perception towards the operational challenge and the faculty challenge of flipped classroom were

discussed. The mean score of teacher educators' perception towards the operational challenge was (34.57) and the standard deviation was (4.72). The mean score of teacher educators' perception towards the faculty challenge of flipped classroom was (33.38) and the standard deviation was (4.90). According to the data, few teacher educators faced some challenges of using IT resources, monitoring students outside class, training teachers' IT skills and providing institutional support. Therefore, few teacher educators faced insufficient on preparation and familiarity with the flipped classrooms to teach students in teaching.

For the third research question, the mean scores of the two teacher educators' perception towards the effect of flipped classroom were compared. By comparing the mean scores, teacher educators' perception towards the effect of customized, active, and engaging environment of flipped classroom was higher than that of better performance. According to the data, learning environments created by the flipped classroom approach are likely to satisfy student teachers' needs for competence, autonomy and relatedness.

For the fourth research question, the mean scores of the two teacher educators' perception towards the challenge of flipped classroom were compared. By comparing the mean scores, teacher educators' perception of operational challenges was higher than that of faculty challenges. According to the data, most student teachers had their own mobile devices but many did not have enough time to use internet access, and it was difficult to ensure that they had truly watched the video.

According to the above mentioned results, a generalization can be drawn that some teacher educators believe that flipped classroom can improve students' performance and has improved students' exam performance. Most teacher educators think that using flipped classrooms can improve students' engagement. They learned more and enjoyed the opportunity to work with peers and explore new learning techniques. Some teacher educators perceived that students struggle with engaged and active learning which requires them to collaborate with others in a nonsynchronous environment. Some student teachers cannot get enough training in flipping the class by adjusting to students' learning styles. Therefore, teacher educators can apply the flipped classroom to help students in acquiring the necessary twenty first century skills and should try to be active and effective in teaching and learning processes.

Suggestions

Based on the major findings of this study, all teachers should recognize that every classroom is filled with a variety of different students who come from different backgrounds, have different learning styles, and different needs. Teachers should know how to adjust it and try to meet the educational needs. Teacher educators should play as a facilitator to guide, stimulate, and support feedback on student's performance in the flipped classroom environment. As technology grows rapidly, Internet access can be available through numerous technology tools such as laptops, computers, and smartphones. Teachers should encourage participating all students to get required knowledge in modern mass society.

Schools, colleges or universities should be assisted to get the Internet access and use sufficiently. It should be available for Internet access and connect with teachers and friends, not only in the classroom but also outside the classroom through distance learning by using this technology. Therefore, students will be able to study at different times and places through collaborative distance learning. The need for differentiation to prevent the challenges of using the flipped classroom should be known. Modern education trend to be qualified teacher educators should also be filled. Students in the flipped classroom should have greater flexibility in their learning because they have been given greater freedom in their learning choices. It can be suitable for slower students who can review lessons and watch the lesson videos as many times as they can to increase their understanding of lessons.

Recommendation

In this research study, the sample teacher educators were selected from the three Education Degree Colleges in Yangon Region: Yankin Education Degree College, Thingangyun Education Degree College, and Hlegu Education Degree College. The result of this research study cannot be generalized to the wider population. In addition, further studies should be carried out by considering other variables in order to validate the results of the present research study. Thus, carrying out larger research in a nationally representative area and for a larger duration is highly recommended to validate the present study results.

Conclusion

To sum up, this study highlights the role of flipped classrooms in the teaching-learning process. And, this study points out the effects and challenges of using flipped classrooms in the teaching-learning process. Flipped classroom provides many benefits to the school system, teachers and students. According to the study, the teacher creates a more customized, active, and engaging environment of the flipped classroom than the better performance of flipped classroom. And, teacher also faces two types of challenges: operational challenges and faculty challenges. Between the two problems, teacher educators faced operational challenge more than faculty challenge in the educational degree colleges. It is hoped that this study will contribute to the education system to some extent.

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