
PERFORMANCE OF TERTIARY EDUCATION STUDENTS IN USING FLIPPED CLASSROOM MODEL

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Abstract

The traditional classroom has shifted into flipped classrooms and geared its focus toward the students themselves to facilitate independent learning skills. This paper sought to look into the effect of using flipped classroom model in teaching tertiary education courses in a state university in the Philippines. It utilized the quasi-experimental design to know the pre- post test scores of the students with or without the flipped classroom model in terms of its competencies such as to know the importance of studying economics as a social being; explain the basic economic problems and its relationship to different economic activities and discuss the different economic system that is suitable. The data were consolidated and analyzed statistically. Further, findings appeared that the students' level of proficiency on pre-test means prior to the implementation of the traditional method was Approaching Proficiency in the first and second competencies and on the third competency the students' level of proficiency was Developing. On the other hand, for the experimental group pre-test, the students acquired the level of Approaching Proficiency in the three competencies. For the Post-test mean of the control group after the implementation of the traditional method, students consistently gained Proficient as level of proficiency while for the experimental group after the implementation of the flipped classroom, the students had a consistent level of proficiency Advance for each competency. It was revealed that there is a significant difference between the performance of the students without or with flipped classroom strategy. Hence, it is hereby recommended that a learning guide in education be implemented in using the flipped classroom model.

Keywords: tertiary education, performance, flipped classroom, state university, Philippines

Introduction

Students' skills working with technology are changing rapidly, yet series of activities done in the classrooms have not totally changed for years. Simply, it means that using technology does not necessarily imply that learning is more effective. Given the ideas of the two teachers from Woodland Park, Colorado, Jonathan Bergmann and Aaron Sams, they have decided to record their lessons through taking videos so that students could view outside the class and these learning strategy lead to have a positive response. Since then, according to them, they have noticed an improvement in their teaching effectiveness and the engagement of their students. They noted that this was due to their video lecture. Instead of the traditional in-class lecture with videos, Bergmann and Sams use different ways in teaching their students especially when they have limited classroom time to work with their students in a one-on-one class, in doing more laboratory works as well as in asking more questions. The original idea was to help those students who cannot attend the class, as they realized that this kind of strategy was beneficial to all the students (Bergmann & Sams, 2012). This new strategy of learning is called as Flipped Classroom in which the lecture of the teacher is being recorded or documented on video to synchronize the viewing and allowing the students to spend more valuable classroom time having an interaction with each other. (Johnson, 2013).

Learning and using a lot of strategies in teaching make the classes more alive and can help the learners to be more participative. Timely, that outcomes-based education has been introduced in 2015 by the Commission on Higher Education in which this approach focuses and organizes the educational system around that is essential for all the learners to know its value and be able to achieve the desired level of competence. Also, by engaging or setting different learning styles in the class, these will allow students to be more creative and will enhance well their knowledge and skills to do better in their classes. As teachers, we have to make sure that students understand and learn on the subject we are teaching in order to achieve the desired objectives set.

Many changes has been done on the different techniques to improve the lecture. Reality shows that students cannot sustain on learning new content continuously for an hour and it has been observed that , having breaks are needed. From this fact, changes are in a form of hand-out lecture notes to let students listen and write at the same time, provide them the power point presentation in order to study and review after the lecture or even the full video which were recorded for a single lecture or more.(Freeman, A, Johnson, L., Becker, A., Estrada, V., 2014).

Upon reading different related studies on how effective flipped classroom as one of the learning strategies used for a progressive class, it encourages the researcher to conduct a study about a classroom approach that will be useful as a learning strategy in teaching subject in Economics

Materials and Methods

This study utilized the quasi-experimental design using the Non-equivalent Control Group. It is a design that identifies a comparison group that is as similar as possible to the treatment group in terms of baseline (pre-intervention) characteristics. It is a design that investigates cause and effect relationships where the researcher lacks control over the assignment to conditions and/or does not manipulate the causal variable of interest.

This design was appropriate in presenting the differences of mean gain of pre-tests between the control and experimental groups and the possible differences of the post-tests scores between the control and experimental groups after the intervention is done.

This study used the researcher-made questionnaire adapted from Roberta Laraga Omas-as in his book *Introductory Economics with Taxation, Agrarian Reform and Cooperatives* in gathering the data of the students. This serve as the primary tool in gathering of data. To determine the pre-post test scores of the students as to the implementation of the flipped classroom approach in the class, the researcher made some modifications to suit to the different competencies in her class. Also, in terms of rating the answers of the respondents, the rubrics that was used was adapted from Claudia Stanny, the Director of the University of Florida in the Center for University Teaching, Learning and Assessment. This rubrics was modified to fit the recent study.

The following statistical treatments used in the analysis in gathering the data are the weighted mean to determine the distribution of scores using the traditional and flipped classroom approach and the t-test independent groups. This determines the significant difference on the post test results of the flipped classroom approach and the traditional.

Results and Discussions

DISTRIBUTION OF THE PRETEST AND POST-TEST RESULTS OF THE STUDENTS WITH OR WITHOUT FLIPPED CLASSROOM STRATEGY

The pre-test and post-test means are the average scores of the respondents got in the administered examination in these three (3) competencies, knowing the importance of studying economics as a social being, explain the basic economic problems and its relationship to different economic activities, and discuss the different economic system that is suitable to Philippine setting. Using the tool presented, these means identified the respondents' level of proficiency in these three cited competencies. The pre-test mean was eventually compared to post-test mean to ascertain the effectiveness of the two strategies: traditional and flipped classroom.

Pre-test of the Control Group Without Using the Flipped Classroom

Table 1 shows the mean of the scores of the respondents pre-test in each competency with its corresponding level of proficiency.

Table 1

Table 1- Pre-test Mean of the Control Group Prior to the Implementation of the Traditional Method

Pre-test Mean of the Control Group Without Using the Flipped Classroom

Competency	N	Pre-Test Mean	Level of Proficiency
Know the importance of studying economics as a social being	12	2.15	Approaching Proficiency
Explain the basic economic problems and its relationship to different economic activities	12	2.46	Approaching Proficiency
Discuss the different economic system that is suitable to Philippine setting	12	1.92	Developing

Table 1 showed the pre-test means prior to the implementation of the traditional method, were 2.15, 2.46, 1.92, in the three (3) competencies. The sample activity that was being used was the “think-pair-share activity” where some of the students presented out of class a material or had controversial quiz question given from a prior assignment in which students reflected on it individually following the teachers’ discussion. During the “think phase” the students worked independently on the different arguments given through writing their ideas while in the “pair phase” the students were able to discuss the different responses with their partner and lastly with the “share phase”, the teacher elicited responses from all the students in the class and began to engage them in a wider discussion demonstrating many different perspectives. In the first and second competency, know the importance of studying economics as a social being, and explain the basic economic problems and its relationship to different economic activities, the mean were 2.15 and 2.46 respectively showed a level of **Approaching Proficiency**. These implied that the students acquired already acquaintance why they studied economics and what were the basic economic problems and its relation to different economic activities. Maybe they gained ideas on these economic problems through social media and news since nowadays the students had an easy access to current events because of technology. Or maybe, students were conscious enough on the problems they may encounter in their real life with regards to economy. For the third competency, discuss the different economic system that is suitable to Philippine setting, the mean 1.92 showed that the students’ level of proficiency is **Developing**. This revealed that students were still gaining ideas on the different economic system that would suit in the Philippine setting. Discussion to the different economic system would deepened the knowledge of the students and internalization of this knowledge would ease the students in choosing which economic system fits in the Philippine setting. Utilization of any strategy may plays a great role in achieving this learning process.

Pre-test of the Experimental Group Prior to the Implementation of the Flipped Classroom

For the experimental group, the pre-test mean of the respondents’ scores to each competencies and level of proficiency were presented in Table 3. The activity that was used was the “Affinity Grouping” in which the class was divided into three to five groups. The teacher let the students wrote individually their ideas on a piece of paper and classify their answers through having a small group discussion. This activity ensured that students are on the same pace of learning before going through another set of a more complicated in-class activity.

Table 2**Pre-test Mean of the Experimental Group Prior to the Implementation of the Flipped Classroom**

Competency	N	Pre-Test Mean	Level of Proficiency
Know the importance of studying economics as a social being	12	2.58	Approaching Proficiency
Explain the basic economic problems and its relationship to different economic activities	12	2.33	Approaching Proficiency
Discuss the different economic system that is suitable to Philippine setting	12	2.17	Approaching Proficiency

Table 2 revealed the students' pre-test means were 2.58, 2.33, and 2.17 in the three competencies respectively had consistently **Approaching Proficiency** as level of proficiency. This implied that the students had a slight ideas on these three competencies. Maybe it is because economics is also a subject in high school and still it's quite interesting to find ways on how to uplift their knowledge/ proficiency in these topics. The result could be a good mark as to which method could be used to elevate their knowledge and gain a long retention of learning.

Post-test Mean of the Control Group After the Implementation of the Traditional Method

Similar to Pre-test, the mean of the scores of respondents' post-test in each competencies were computed and its respective level of proficiency were presented in Table 3. The "team matrix" activity was used during this time. This was done through introducing of new concepts that are quite similar to one another in which this activity will help the students in identifying the most salient features of the different concept while having its differentiation. Students were able to present their ideas by pairs with the list of characteristics that they has been shared between concepts and have the students determined which characteristics they belonged. Afterwards, whole entire class has to check their comprehension skills by evaluating their answers.

Table 3
Post-test Mean of the Control Group After the Implementation of the Traditional Method

COMPETENCY	N	POST-TEST MEAN	LEVEL OF PROFICIENCY
Know the importance of studying economics as a social being	12	3.77	Proficient
Explain the basic economic problems and its relationship to different economic activities	12	3.77	Proficient
Discuss the different economic system that is suitable to Philippine setting	12	3.62	Proficient

As reflected in Table 4, the post-test mean of the respondents' score for the three competencies were 3.77, 3.77, 3.62. Consistently, the students gained **Proficient** as level of proficiency after the administration of the traditional method and the lessons were administered through lecture discussion, text book-based, long explanation and teacher-focused activity.

The post-test mean 3.77 for competency, **know the importance of studying economics as a social being**, had a mean gain of 1.61 from the pre-test; post-test mean of 3.77 for competency, **explain the basic economic problems and its relationship to different economic activities**, had a mean gain of 1.31 from the pre-test; lastly, the post-test mean of 3.62 for competency, **discuss the different economic system that is suitable to Philippine setting**, had a mean gain of 1.69 from the pre-test.

The results implied that the traditional method had a significant increase of the scores and mean gain of the respondents' in the three (3) competencies. This showed that traditional method or teacher-centered approach is still effective way and it depends on how the teacher delivered or carried out the method.

Post-test of the Experimental Group After the Implementation of the Flipped Classroom

After the implementation of Flipped Classroom, the students' scores were tallied and the mean of the scores were computed in each competencies and its corresponding level of proficiency were presented in Table 4. The activity was the "fishbowl discussion" wherein the teacher asked them to group themselves with 3 to 5 members for each group. They were given 15-30 minutes to engage in a peer-mediated discussion while other students sat in a larger circle and watched the discussion, took notes, critique the content and the logic of the discussion. From this, students were able to discuss and interact with each other and provide additional insights into the topic provided by the teacher which they can give constructive feedbacks.

Table 4
Post-test Mean of the Experimental Group After the Implementation of the Flipped Classroom

COMPETENCY	N	POST-TEST MEAN	LEVEL OF PROFICIENCY
Know the importance of studying economics as a social being	12	4.25	Advance
Explain the basic economic problems and its relationship to different economic activities	12	4.42	Advance
Discuss the different economic system that is suitable to Philippine setting	12	4.67	Advance

As revealed in Table 4, after the implementation of the Flipped Classroom to experimental group, the students had a consistent level of Proficiency “**Advance**” for each competency. The post-test mean of 4.25 – “**Advance**” for competency, know the importance of studying economics as a social being, had a mean gain of 1.67 from the pre-test; mean of 4.42 – “**Advance**” for competency, explain the basic economic problems and its relationship to different economic activities, had a mean gain of 2.08 from the pre-test; and mean of 4.67 – “**Advance**” for competency, discuss the different economic system that is suitable to Philippine setting, had a mean gain of 2.5 from the pre-test.

This implied that Flipped Classroom strategy contributed much to students in the acquisition of knowledge or learning the subject. It had a significant increase of the scores and mean gain of the students at Cebu Technological University, Main Campus on their post-tests of the three competencies. This a manifestation that the students tended to learn more by Flipping the classroom, imparting knowledge or discussion through video clippings, made the students more interested, well-motivated, easy grasp concepts, thus promoting easy absorption and understanding of the intended learning outcome.

SIGNIFICANT MEAN DIFFERENCE BETWEEN THE POST-TESTS OF THE TRADITIONAL AND FLIPPED CLASSROOM STRATEGY

This study opted to determine the significant difference between the post-tests of the traditional and flipped classroom and served as basis as to what method contributed much in the acquisition of students learning or increase the students’ performance.

To test the Null Hypothesis that there is no significant mean difference between the performances of the students without, that is traditional strategy, or with Flipped Classroom strategy, the values found in the table below were utilized.

Table 5
Significant Mean Difference between the Post-Tests of the Traditional and Flipped Classroom Strategy

Post-Test	Mean	SD	Critical t-value, $\alpha=0.05$, $df=23$, two tailed	Computed t-value	Decision
Traditional	3.72	0.56	2.07	2.99	Reject the null hypothesis
Flipped	4.44	0.17			

As posted in the table, the result indicated that t-critical (2.07) is less than the t-computed (2.99) that cause for the rejection of the null hypothesis, stating the use of Flipped Classroom significantly increases the performance of the students.

This was a sufficient evidence that Flipped classroom contributed much in the acquisition of knowledge and increase the performance of the students. This made the students well-motivated, participative, and attentive, thus, promotes utmost learning outcomes.

Conclusion

Based on the findings, it can be concluded that there is a significant difference between the performance of the students without or with flipped classroom strategy.

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