

FLIPPED CLASSROOM APPROACH FOR DEVELOPING CRITICAL THINKING OF PRE-SERVICE STUDENT TEACHERS

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Abstract

The present study was conducted with the objectives to study the effects of Flipped classroom practices on the development of critical thinking of Pre-service Teachers on Learning and Teaching process and to explore the patterns of change in the beliefs and practices of Pre-service teachers towards Flipped classroom approach. The study was delimited to the Pre-Service Student Teachers of NKC CTE, Angul. After analysing the data collected by the researcher, it was found that the flipped classroom approach is becoming a popular way to increase the interactivity of the instructional format. There is more effort needed on the part of both learners and teachers to prepare materials and videos before a lesson, lecture, class or session takes place in comparison to the traditional classroom approach.

Key words: Flipped, Critical thinking, Pre-Service, Student-Teacher

1. Introduction

Teaching is a profession and teacher education is a process of preparation of teachers as professionals. In 21st century, with the changing perspective of the teacher education and increasing focus on the pedagogic skill development of each individual student teacher, the classroom teaching learning processes are undergoing many changes from teacher centric approaches to learning centric approaches. The Pre service classrooms with respect to preparing teachers for 21st century is undergoing a rapid transformation into innovative learning environments that are connected, flexible and collaborative.

Through the use of digital devices student teachers are actively engaged in their learning in a meaningful way. Recently, a paradigm shift has taken place in education with the advent of a model of teaching known as the flipped classroom. The flipped classroom model encompasses any use of using Internet technology to leverage the learning in a classroom, so that a teacher can spend more time interacting with students instead of lecturing (Bergmann & Sams, 2012a). This is most commonly being done using teacher-created videos that students view outside of class time. It is called the flipped class model because the whole classroom/homework paradigm is “flipped”. In its simplest terms, what used to be class work (the lecture) is done at home via teacher-created videos and what used to be homework (assigned problems) is now done in class. With the proliferation of Internet technology, virtual communications, and learning management systems, many college and university instructors are interested in a flipped classroom (Berrett, 2012). In the

flipped class, teachers create online videos of their lectures, having students view them and take notes before attending class. Students then work in class on inquiry-based assignments, which includes what is traditionally thought of as homework. This creates the flipped classroom, thus completely shifting the paradigm of teaching and learning.

Flipped classroom approach has four different elements. It is expressed that in order to teachers achieve this approach; they have to take these four elements into consideration (FLN 2014). The properties of this approach which its English correspondence is “Flip” are explained like this by referring first letters:

- **‘F’** stands for Flexible Environment: It indicates provision of time and place flexibility in learning.
- **‘L’** stands for Learning Culture: In teacher centred approach, the source of knowledge is teacher. In flipped classroom approach there is transition from teacher centred approach to learning centred approach.
- **‘I’** stands for Intentional Content: Flipped classroom educators both think about how education is used to provide fluency and how they can develop cognitive understanding of students.
- **‘P’** stands for Professional Educator: The responsibility of flipped classroom educators is more than the ones using traditional approach. Flipped classroom educators continuously observe students during the course, evaluate their studies and make feedbacks (Flipped Learning Network -FLN, 2014).

A flipped classroom is a class where the lecture and homework have been reversed. The flipped model is an approach where direct instruction and lecture is viewed at home through video lectures, reading handouts, power point presentation or some other direct instruction and class time is used for collaboration and project-based learning. The flipped classroom also involves a transformation of the teacher’s role. In a traditional class, the teacher can be described as the “sage on the stage” that presents information in engaging ways in hopes that students will pay attention and absorb the information (Bergmann, Overmyer, & Wilie, 2012).

2. Statement of the Problem

In the present study, attempts were taken to introduce, explore and implement the strategies of flipped classroom approach for enhancing the higher order thinking skills of the student teachers. Here, the research problem is stated as a “Flipped Classroom Approach for Developing Critical Thinking of Pre-Service Student Teachers”.

3. Operational Definitions of the Key Terms

a) Flipped Classroom Approach: With its simplest definition flipped classroom approach is expressed as “what is done at school done at home, homework done at home completed in class” (Sams & Bergmann, 2014). In this approach before the course the students watch theoretical part of lesson via multiple equipments such as online videos, presentations, learning management systems and take notes, prepare questions about the parts that they do not understand (Kim, Kim, Khera, & Getman, 2014).

b) Critical thinking: Critical thinking is the ability to think clearly and rationally about what to do or what to believe. It includes the ability to engage in reflective and independent thinking. It stimulates higher levels of questioning, learning, and understanding of any given concept. Critical thinking is the process of actively and skilfully analyzing, interpreting, evaluating, and creating information through observation, experience, reflection, reasoning, or communication.

4. Objectives of the Study

The study was conducted with the following objectives:

- To study the effects of Flipped classroom practices on the development of critical thinking of Pre-service Teachers on Learning and Teaching process.
- To explore the patterns of change in the beliefs and practices of Pre-service teachers towards Flipped classroom approach.

5. Hypotheses

- There is no significant effect of flipped classroom practices on the development of critical thinking of Pre-service Teachers in the Learning and Teaching process.
- There is no significant pattern of change in the beliefs and practices of Pre-service teachers towards Flipped classroom approach.

6. Delimitation

- The study was delimited to the Pre-Service Student Teachers of NKC CTE, Angul to conduct the study.

7. Method of the Study

The present study was designed with a mixed-methods approach.

- (a) **Design of the study:** The design of the study was single group pre and post experimental design. The classroom process was shifted as the group was taught using Flipped classroom approach. The development in pre-service teachers' level of 21st century skills (critical thinking and creative thinking) was measured by administering a test before and after the treatment. The test questions were assessed by using rubrics having four levels i.e. novice, developing, and competent. The developmental progress in collaboration skill and ICT literacy was observed during classroom process.
- (b) **Participants of the Study:** The participants of the study consisted of first year B.Ed. student teachers studying in NKC CTE, Angul. The no. of pre-service teachers taken as sample group were 45 (N = 45). The sample is assigned purposefully as one of the researcher is teaching in NKC CTE, Angul.
- (c) **Tools used for data collection:** The data was collected both quantitatively and qualitatively and also analyzed quantitatively as well as qualitatively. The quantitative analysis is the major part of the study. The tool used to collect and analyze data quantitatively was Achievement test (base line and end line test). The Rubrics was used to assess the test items. The classroom observation notes and opinionnaire were used to collect data qualitatively.
- (d) **Achievement Test:** The test conducted before the treatment was base line test and at the end of the treatment was end line test. Both the tests consist of seven questions based on critical thinking and creative thinking.
- (e) **Rubric:** A rubric consists of three levels i.e. Novice, Developing and Competent was developed to assess the test items with respect to development in the level of critical thinking and creative thinking. The analysis was done as per the criteria fixed at each of the three levels.

- (f) **Opinionnaire:** An open ended opinionnaire was developed in online mode to explore the beliefs and practices of pre-service teachers taught in flipped classroom approach. The opinionnaire consists of six open ended questions.

8. Procedure of Intervention Programme

It was conducted in three stages like Pre-Implementation stage, the Implementation stage, and the post-Implementation stage. In each stage, various activities were conducted.

(a) **Pre-Implementation Stage (Planning):** The content of Perspective in Education (PE 3: Learning and Teaching) and Curriculum and Pedagogic Studies (CPS 2- Learning Assessment) was analyzed, and the objectives of different units were written with the help of Bloom's revised taxonomy (remembering, understanding, applying, analyzing, evaluating, and creating). Different types of activities (video, handouts, power point presentation, questions, audio, quiz, case studies, reference materials, etc.) were reflected in the template. Videos were downloaded from different sources and a few videos were also developed as online resources. A resource package was developed for flipped classrooms.

(b) **During the Implementation Stage (Execution):** Mobile-based learning is encouraged, a WhatsApp group is created and all the pre-service teachers of NKC CTE, Angul were added to that group for sharing resources and creating a platform for online learning. The group is also being used for academic mentoring purposes for ensuring flipped classrooms and all the pre-service teachers included in the group were oriented. The contents in PE 3 and CPS 2 were analyzed and resources were mapped. The intervention of flipped classroom model was used for both papers in B.Ed. 1st year (45 student teachers).

(c) **Post- Implementation Stage (Analysis and Reflection):** The post-test was administered with B.Ed. 1st year pre-service teachers of NKC CTE, Angul. The opinion of B.Ed. 1st year pre-service teachers of NKC CTE, Angul were taken through opinionnaire after completion of the two units. The answers to the end-line test and baseline test were assessed by using rubrics. The level of critical thinking was tabulated and analyzed. The data were analyzed by using both qualitative and quantitative techniques.

9. Major Findings: The major findings of the study are:

- The use of ICT like videos, PPTs, handouts etc. through mobile based learning mostly in WhatsApp group acquaint the pre-service teachers with use of ICT but need to explore and use more ICT tools to developed the skill of ICT literacy among the student teachers.
- The use of different cooperative learning strategies in the class increased the participation of pre-service teachers. The "Think pair share", "Round Table" and "Gallery walks" strategies were the most effective strategy used in developing the critical thinking. The in-class activity was effective in increasing the participation of student teachers, which is a positive sign for ensuring collaboration during learning.
- The cooperative learning strategies used for few enquiry-based questions helped pre-service teachers to gather relevant information using mobile based learning inside the classroom. It also helped them to be familiar with use of ICT and internet for learning.

- After the treatment, the pre-service teachers' responses were distributed in all the levels and the percentage of pre-service teachers' response in level 1 was decreased, it gives a conclusion that because of flipped classroom approach, the critical thinking level of the pre-service teachers has been enhanced.
- The pre-service teachers liked the flipped classroom process as a holistic manner and suggested to focus on the responses of online discussion forum to increase the level of participation.

10. Educational Implication

This study can attract attention of teacher educators of different Teacher Education Institutions of the State about the potential of approach and can form a point of view how to use it in their pre service courses. For expanding of flipped classroom approach in educational institutions, it is thought that the approach has to be cognitively and practically presented.

11. Conclusion

The flipped classroom approach is becoming a popular way to increase the interactivity of the instructional format. When using the flipped classroom approach, there is more effort needed on the part of both learners and teachers to prepare materials and videos before a lesson, lecture, class or session takes place in comparison to the traditional classroom approach. The effort put in is worth the while because the flipped classroom approach has been proven to increase the retention of knowledge learned and make valuable class time more worthwhile for learners.

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