

## **Effects of Flip Learning Approach on Prospective Teachers' Pedagogical Skills**

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### **Abstract**

*Prospective teachers' training is carried out adopting various approaches. Every approach has some merits and demerits. The current study adopted a flip learning approach for the training of prospective teachers in pedagogical skills. The study was delimited to four pedagogical skills (instructional planning, presentation, classroom management and assessment skills). Null hypotheses were formulated and in pre-experimental designs one group single case study design was adopted. The treatment of the group was done through flip learning approach for teaching of pedagogical skills for prospective teachers. Students of B.Ed one year in distance education program at Takht Bhia center were selected for the study. Data were collected through a questionnaire and were analyzed through mean std deviation and t-paired test. The results rejected the null hypotheses as there was a significant effect of flip learning approach on prospective teachers' pedagogical skills. It was therefore, recommended that prospective teachers may be taught through flip learning approach particularly in the teaching of pedagogical skills.*

**Keywords:** Flip learning approach; Prospective teachers; Pedagogical skills.

### **Introduction**

The most traditional and common approach in teaching is lecture approach. Teacher leads the class and retains the responsibility of transmitting knowledge to students. Students being silent spectators listen and try to reproduce the same.<sup>1</sup> Critical thinking,

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problem-solving and self-independent learning are the aspects of student's active learning which are remain ignored. 21<sup>st</sup> century learners are expected to be knowledge constructors, managers and consumers.<sup>2</sup> Therefore, it is indispensable to make the learners active in learning, make them responsible for learning, inculcate critical thinking skills and make them scientifically strong in problem-solving skills. Research studies in teacher education particularly in pedagogical studies have identified various teaching approaches such as, co-operative learning, project-based learning, inquiry-based learning, heuristic method and many other teaching methods for students' active learning. Among all those, one is Flip learning approach. It is an inverted and digital supported approach in teaching learning process.<sup>3</sup>

It was for the first time Jonathan Berghmann and Aaron Sams who adopted flip approach in teaching chemistry at secondary level. They captured their lecture through videos and audios for their students before the class teaching. Students watched and heard those videos and audios and learn the basic concepts of chemistry at home. Class teaching was reduced to practical work and experiments.<sup>4</sup>

The uses of flip teaching at secondary level in science subjects have been investigated. The results stated that intervention through flip teaching is more contributive. It leads students to self-directed learning and concentrates on higher order thinking patterns. Flipping learning and its effectiveness have been investigated at school, college and university level in different subjects.<sup>5</sup> Students achievement, academic stress, classroom environment and learning activities were also investigated from flip learning perspectives.<sup>6</sup>

Teacher education aimed to equip the teacher with pedagogical skills. These skills are transferred to them through different pedagogical approaches. The effects of pedagogical training on the pedagogical skills of university teachers were investigated.<sup>7</sup> The newly inducted teachers were trained in pedagogical approaches such as teacher-centered approach, presentation skills and in classroom management skills. Communication and interaction skills for new teachers.<sup>8</sup> One additional pedagogical reasoning skills was identified.<sup>9</sup> The teacher pedagogical skill was also investigated where they identified different competencies and pedagogical skills of teacher for different situations and purposes.<sup>10</sup> Skills for transfer of knowledge, skill for socialization, management, assessment, counselling, general and special are important to be mentioned in

the above-mentioned study. (i) Planning skills-includes; educational needs of students, resource mobilization, designing a complete framework for the implementation of educational plan, (ii) learning strategies and classroom management skills-includes; using learning strategies to meet students educational needs, students' involvement in learning skills (critical thinking, problem solving and creativity), time and classroom resource management, (iii) knowledge and subject matter skills-includes; full understanding of subject, application of scientific method in the subject, integrating the subject knowledge with other subjects and producing new knowledge in the subject, (iv) evaluation skills-includes; self assessment, peer assessment, supervisor assessment and program assessment.<sup>11</sup> Current study investigated the effects of flip learning approach on prospective teachers' pedagogical achievement.

#### *Study Targets*

The study focused to investigate the effects of flip learning approach on the pedagogical skills of prospective teachers. This was the ultimate objective of the study which was divided into following sub-objectives;

- i). To investigate the effects of flip learning approach on prospective teachers' planning skills;
- ii). To investigate the effects of flip learning approach on prospective teachers' presentation skills;
- iii). To investigate the effects of flip learning approach on prospective teachers' classroom management skills;
- iv). To investigate the effects of flip learning approach on prospective teachers' classroom assessment skills.

#### *Hypotheses*

Following null hypotheses were formulated to investigate the research objectives:

- i). There is no significant effect of flip learning approach on prospective teachers' planning skills;
- ii). There is no significant effect of flip learning approach on prospective teachers' presentation skills;
- iii). There is no significant effect of flip learning approach on prospective teachers' classroom management skills;
- iv). There is no significant effect of flip learning approach on prospective teachers' classroom assessment skills.

*Review of related Literature*

A PhD dissertation on the effects of flip classroom on classroom environment and learning activities at college level was investigated. 2<sup>nd</sup> semester BS students of two different colleges were the respondents of the study in the subject of Introduction to Statistics. One class was exposed to traditional lecture and homework method while the other was exposed to flip approach of teaching. Students of flip approach were given video lectures, and an online MCQs test which they have to take after watching that lecture video. Direct feedback was given to students as to complete the MCQs test, all the incorrect answers were displayed to them along with correct answers and a short justification of the correct answer. Students class time was spent in small group discussions, project and assignment completion. Teacher role was changed from the sage at the stage to guide on the side. He/she was giving hints and guiding the students in completing their assignments. The study time was one semester (five months), after the study time a College/university Classroom Environment Inventory was used to collect students' responses on the existing classroom environment and preferred classroom environment. The learning activities of both groups were investigated through focus groups interview, students' notes, and self-reflection. The results illustrate that flip teaching students were not satisfied with their class environment, as it was new and they were unable to adjust themselves to flip environment. The learning activities of flip class were appreciated and they found it interesting. Although the study haven't investigated the effects of flip teaching on students' academic achievement but find its effects on classroom environment and learning activities.<sup>12</sup> The effects of flip teaching were investigated in the following empirical studies.

The empirical evidences of three different universities on the effectiveness of flip teaching in students' classroom engagement and academic achievement. These universities include San Jose State University, Vanderbilt University and Montana State University. The evidence of San Jose State University reveals that students adopted flip model has improved their grades to a significant level. Two sections of students were made for the study, in one section there were Eighty five (85) who were exposed to video lectures and they attend their class twice a week. On Mid-Term results the median score except of more difficult questions demanding more critical efforts the flip section perform higher than the other section. It was remained for the same section up-to the end of the semester, and their performance was measured again

which shows their significant results as compared to the other section. Based on these results it was concluded that flip teaching is more contributive in students learning as compared to traditional approaches.

The study conducted in Vanderbilt University on a huge class of physics students who were taught for eleven weeks through an interactive lecture method and the results were not significant. The students were divided into two groups, one group was lead through flip approach where students were given reading material, video lectures and power-point presentation before the class and they have to go through those materials while the class time was devoted to small group discussions, quizzes and real life problems (applying knowledge to real life situation). Flip intervention boosted the performance of the flip group as compared to the second one.<sup>13</sup>

Study conducted in Montana State University investigated the effects of flip classroom on student's achievement and stress explains the significant effects on students' educational performance. Through an interview students were asked about their stress while studying in flip approach, majority of the respondents viewed fewer stress in flipped classroom as compared to traditional classrooms. They were also found satisfied with the environment developed in flipped classroom. Furthermore, flipped teaching was found helpful for students in completing their assignments, in enhancement of their critical skills/thinking.<sup>14</sup>

An article was presented in 28<sup>th</sup> annual conference on distance teaching and learning in by Bethany B. Stone. The study was conducted in Missouri Columbia in the subject of Genetic diseases and General Biology. The study investigated that impact of flip teaching strategy on students' learning and classroom attendance. It also investigated students' attitude towards this teaching strategy. The difference in traditional lecture method providing the same material to students of control and experimental group were same but the mechanism of flip teaching strategy was adopted for the experimental group in both subjects. The results illustrate a slight high performance of students exposed to flip teaching strategy. It was considered that students' attendance when they were provided video lectures of their course, would be a problem but dramatically the attendance of flip class students were 3% higher than the traditional teaching class. The author identified some issues in this new teaching strategy which are; teacher needs more time, efforts and resources, he needs to prepare a video lecture, before the class, designing activities for

classroom activities. Beside the evidence of its effectiveness students also resist it as they have to do more than in traditional set up, but a teacher has to be open and realize them the future prospective of flip teaching.<sup>15</sup>

### *Research Methodology*

The study was experimental in nature. In pre-experimental designs one group single case study design was adopted for the study. The population of the study was students of B. Ed one year workshop in distance education program from Allama Iqbal Open University Islamabad, and the station was Takht Bhai where (184) students were present for the a fifteen days compulsory workshop. A sample of thirty students was selected through purposive sampling techniques. The instructor was qualified enough and has the knowledge and skills of implementing flip learning approach. Students were instructed in pedagogical skills through flip learning approach. Ready-made videos and audios, reading material, pictures, diagrams and power point presentations were adopted for flipping the learning material of the students.

The treatment (instructing through flip approach) was remained active for all the fifteen days. The attendance of the students was (97%) and the selected group of students was taught by the same teacher throughout the workshop. After the treatment a questionnaire was used to collect the data regarding the effectiveness of flip learning approach on prospective teacher pedagogical skills. This questionnaire was designed to measure the perceptions of the respondents before the flip learning approach and after flip learning approach. Students were asked about four pedagogical skills (1) Planning for instruction (2) presentation skills (3) classroom management skills and (4) classroom assessment skills. The collected data were analyzed through mean std deviation and t-paired test.

### **Results of the Study**

Table 1: Planning for instruction

Statements	M.B	M. A	M. D	t-value	Sig
Lesson planning for teaching	2.4	3.5	1.1		
Classifying contents in manageable manner	2.1	3.6	1.4	4.521	0.020
Achieving intended	2.7	3.4	0.7		

outcomes					
Relating the contents to real life situation	1.2	3.3	2.1		
Cumulative results	8.4	13.7	5.3		

The above table illustrates the results on planning for instruction which reflects respondents' perceptions about the effects of flip learning approach on their planning skills for instruction. The increase in means scores and means difference is the evidence that they feel that they have enhanced their planning skills in flip learning approach. The t value was 4.521 which were significant at 0.02 which is less than 0.05. The null hypothesis was rejected as there was a significant effect of flip learning approach on prospective teachers' instructional planning skills.

The reason for this improvement is the regular involvement of the respondents in planning for instruction and implementing the same in the workshop.

Table 2: Presentation skills

Statements	M.B	M. A	M. D	t-value	Sig
Presentation of contents in an interesting manner	3.2	3.6	0.4	3.587	0.037
Bounding the previous and new lesson	2.6	3.7	1.1		
Involving students in instructional process	2.2	4.2	2.0		
Exemplifying through interesting evidences	2.4	3.6	1.2		
Cumulative results	10.4	15.1	4.7		

The above table illustrates the results on presentation skills of prospective teacher which reflects that majority of the respondents have good perceptions about the effects of flip learning approach on their presentation skills in instruction. The increase in means scores and means difference is the evidence that they feel that they have improve their presentation skills in flip learning approach. The t value was 3.587 which were significant at 0.037 which is less than 0.05. The null hypothesis was rejected as there was a significant effect of flip learning approach on prospective teachers' presentation skills.

The reason for this improvement is the regular presentation in the workshop and constructive feedback. Furthermore, it was because of the regular opportunity of presentation at class.

Table 3: Classroom management skills

Statements	M. B	M. A	M. D	t-value	Sig
Seating arrangement for instruction	1.4	2.7	1.3	3.750	0.033
Time management for activities	2.2	3.4	1.2		
Proper use of teaching and learning aids	2.4	3.5	1.1		
Contents presentation management	3.6	3.8	0.2		
Cumulative results	9.6	13.4	3.8		

The above table illustrates the results on classroom management skills, majority of the respondents' perceptions were higher in flip learning approach, and they have improved their classroom management skills. The increase in means scores and means difference is the evidence that they feel that they have enhance their classroom management skills in flip learning approach. The t value was 3.750 which were significant at 0.033 which is less than 0.05. The null hypothesis was rejected as there was a significant effect of flip learning approach on prospective teachers' classroom management skills.

Classroom management skills are need to be used in organizing flip learning approach regularly, which was the reason that majority of the respondents feel good in the flip learning approach for their classroom management skills.

Table 4: Classroom assessment skills

Statements	M. B	M. A	M. D	t-value	Sig
Pre-instruction assessment	1.4	3.2	1.8	4.182	.024
Self-assessment	1.2	2.4	1.2		
Formative assessment	2.2	2.7	0.5		
Use of assessment for effective instruction	1.5	3.4	1.9		
Cumulative results	6.3	11.7	5.4		



Classroom assessment skills enable the teacher to lead the instruction successfully. The above table shows the results of prospective teacher assessment skills which reflect that majority of the respondents' perceptions about the effectiveness of flip learning approach in enhancing their classroom assessment skills were found satisfactory. The increase in means scores and means difference is the evidence that they feel that they have enhanced their classroom assessment skills in flip learning approach. The  $t$  value is 4.182 which was significant at 0.024 which were less than 0.05. The null hypothesis was rejected as there was a significant effect of flip learning approach on prospective teachers' classroom assessment skills.

Pre-instructional discussion, quizzes and other related activities are the essence of flip learning approach which directly contributed to prospective teacher classroom assessment skills.

### **Conclusions and Recommendations**

The study reflects the effectiveness of flip learning approach for prospective teachers. The improvement in instructional planning skills concludes that prospective teachers may be taught through flip approach regularly as it provides them an opportunity to plan regularly for the class. It is therefore recommended that teacher instructional planning skills may be improved through adopting flip learning approach.

Subject matter presentation considers the main responsibility of teachers. Prospective teachers are trained in presentation skills through different mechanism. The results of flip learning approach in this study illustrated its effectiveness. Summarizing previous class learning, identifying gray areas in contents, making practical and hands-on practices are the important activities in flip learning approach that have positive and significant influence on prospective teachers presentation skills. It is therefore recommended for the teacher training institutions that they may adopt flip learning approach for presentation skills training of the prospective teachers.

The results of the study on classroom management and assessment skills were also found significant. Classroom seating, teaching time management, contents distribution and collecting the summary in flip learning approach have significantly positive influence teacher classroom management skills. Furthermore, the assessment of class-work, reading material and formative practices of assessment along with the usage of assessment results for

modifying instruction reflect the effectiveness of the flip learning approach.

The study was delimited to a single group of students and no comparison was made with a control group, and it was carried out in a distance program and the duration of the students' treatment was also limited to fifteen days. It is therefore recommended that same study may be conducted by other researchers adopting true experimental design and giving a lengthy treatment session, to confirm the effectiveness of flip learning approach.

## Notes & References

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