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Effect of Flipped Classroom on Classroom Environment in terms of Instructional Support and Innovation for Prospective Teachers

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Abstract

The study aimed to investigate the effect of flipped classroom with reference to instructor support and innovation. Quasi experimental research design was employed. All the prospective teachers of Abdul Wali Khan University Mardan (AWKUM) were the population of the study. Forty-eight participants of an affiliated college of AWKUM were selected and divided into two groups. Two experienced teacher educators were assigned to teach the same content to experimental and control groups. Experimental group were taught while using flipped classroom strategy. On the other hand, the teacher for the control group employed traditional lecture method. Duration of intervention was eight weeks. Questionnaires were used to collect data at the end of treatment. Collected data was analyzed using independent *t*-test and tabulated accordingly. Cohen's d was calculated to determine the effect size. Findings of the study revealed a statistically significant difference between the classroom learning environments of the two groups; flipped classroom students were more satisfied from the innovative classroom learning environment. It was recommended that emerging teaching strategies should be encouraged by the higher authorities and professional institutions at all levels of education.
Keywords: Flipped Classroom, Innovation, Instructional Support

Introduction

One of the most exhilarating developments in the contemporary classroom is flipped learning. The "flipped learning approach" is a teaching method that encourages active learning both within and outside the classroom. It hinges on the idea that students learn more effectively by using class time for small group activities and individual attention (Doo, 2021). The rapid growth of flipped learning is due to its strengths as an instructional approach, such as improved learning engagement, cost-efficiency of implementing learner centered approaches to a large number of students, and increased learning outcomes (Al-Samarraie et al., 2019; Bergmann & Sams, 2012; Fulton, 2012

Flipped learning, which is precisely described by researchers as a "pedagogical strategy" involves moving direct instruction from the group learning environment to the individual learning space (Yadav, Sankhla & Yadav, 2021; Doo, 2021; Nouri, 216) where an individual can learn at his own pace and individual learning is shifted to a group learning environment. The group space

that results is turned into a dynamic, interactive learning environment where the teacher supports students as they apply concepts and partake in creative activities (Flip Learning, 2014; Bergmann & Sams, 2011; Minaz, Tabassum & Idris 2017).

The flipped classroom according to Halili, Mohsin & Razak (2021) is a catalyst for students' drive to learn since they can use animation and multimedia more effectively than they can in traditional classroom. According to several research findings, activities in the flipped classroom was considered to be favorable for conducive learning environment (Bergmann & Sams, 2011; Nouri, 216; Minaz, Tabassum & Idris, 2017; Minaz, Tabassum & Ahmad, 2018; Lage, Platt, and Treglia 2000; Doo, 2021; Halili, Mohsin & Razak, 2021; Wittmann & Wulf 2023).The learning situation in the classroom is encouraging, and participants engage in idea mapping, collaborative learning, and dialogues using cooperative learning strategies.

Wittmann and Wulf (2023) conducted a research to investigate the effect of flipped classes on student learning. 147 undergraduate students at a German University were selected as the part of the study. Findings of the study revealed that the flipped strategy improved students learning. Furthermore, the positive attitude of instructor created a advantageous learning environment. Doo, (2021) investigated flipped learners' perceptions, perceived usefulness, intention to register for flipped learning classes, and learning engagement using cluster analysis with a sample of 306 undergraduate students in flipped classes. Findings of the study supported the idea that flipped classroom is more effective for students learning. The research findings also suggest that flipped class instructors and school administrators utilize cluster analysis with meaningful variables to provide students with effective and tailored learning support.

In a Swedish institution, Nouri (2016) also contrasted the efficiency of flipped learning for high achievers and low achievers. Along with the effective use of video, flexibility, and mobility, that enhanced learning, the study's participants had favorable impressions of flipped learning as an instructional strategy. The study found that the low achievers valued the usage of video as pre-online learning materials more than the higher achievers, despite the fact that there were no significant variations in attitudes toward flipped learning between high achievers and poor achievers. Additionally, low achievers experienced greater learning benefits than high achievers. Fisher, Perenyi and Birdthistle (2021) conducted a study to examine the positive connections between flipped and blended learning with students' engagement, performance, and satisfaction. Data from 348 students was collected, and the findings indicate that both flipped and blended learning have a positive relationship with student's perceptions of engagement, performance, and satisfaction. However, flipped learning mediates the effects of blended learning, highlighting the fact that blended learning pedagogies are merely delivery methods and have no bearing on the student's capacity to learn. Students also find the engagement that the flipped learning approach promotes to be intrinsically rewarding, regardless of their performance. The present study was designed to compare the level of support and innovation provided by instructor for the flipped classroom technique to traditional class.

Methods

Design

Quasi-experimental design was applied to understand whether the implementation of the flipped classroom strategy affects the learning environment of the prospective teachers.

Participants and Context

All the pre-service teachers of Abdul Wali Khan University Mardan (AWKUM) were the population of the study. Forty-eight participants of an affiliated college of AWKUM were selected as a sample and divided into two equal groups. There were 30 male (62.5%) and 18 (37.5 %) female participants.

Procedure of the Study

The researcher selected the subject of Educational Psychology to teach and followed all the directions required for a flipped classroom teaching to the experimental group. This study used What Is Happening In this Class (WIHIC) scale developed by Skordi and Fraser (2019) to measure instructor support. The reliability of the scale was found to be 0.87 through pilot testing. The participants of both groups were asked to fill the questionnaire.

Data Collection

Data was collected from both experimental (flipped classroom) and control group (traditional classroom). Collected data was analyzed and tabulated accordingly.

Data analysis

Table 1

Group wise Comparison of the participants about the instructor support

Groups	N	df	S.D	Mean	*t*- value	*p*-value	Effect size Cohen's d
		46					
Experimental	24		2.528	27.71	8.950	0.000	2.58
Control	24		3.407	19.96			

Table 1 indicates that t-value is 8.950 which is greater than table value1.676 at level of significance 0.05 and p= 0.000< 0.05. Hence, the null hypotheses stating that there is no statistically significant difference between the classroom learning environments with respect to instructor support of the two groups is rejected. The effect size 2.58 is higher as indicated by (Cohen's, 1988; Sawilowsky, 2009). The results showed that during flipped classroom the instructor was fully supported by the students and the learning environment was more cooperative than typical classroom learning.

Table 2

Group wise Comparison of the participants about the innovation

Groups	N	df	S.D	Mean	*t*- value	*p*-value	Effect size Cohen's d
Experimental	24		4.025	24.88			
Non-		46			5.595	0.000	1.61
Experimental	24		3.203	19.00			

Table 2 indicates that t-value is 5.595 which is greater than table value 1.676 at level of significance 0.05 and p= 0.000< 0.05. Therefore, the null hypotheses stating that there is no statistically significant difference between the classroom learning environments with respect to innovation of the two groups is rejected. The effect size was found to be 1.61 which is significant as indicated by (Cohen's, 1988; Sawilowsky, 2009). The above results showed that respondents

of flipped classroom perceived classroom environment more innovative. As compared to traditional classroom.

Results and Discussion

Results of the data indicated that there is a statistically significant difference between the classroom learning environments with respect to instructor support of the two groups. The results show that during flipped classroom the instructor was fully supported the students and learning environment were more cooperative than typical classroom learning contexts. Both male and female pre-service teachers were of views that they were more active during the flipped classroom learning environment. These findings were similar to other flipped classroom studies reported by Deslauriers et al (2011) and Gillispie (2016). This is because flipped classroom strategy engaged students (1) to know new concept and information in advance, (2) to have factual knowledge for concepts, understanding references searching and knowledge application, (3) to apply metacognitive strategies for self-learning through self-monitoring. Students were expected to be regularly guided by the instructor and in time feedback was provided inside and outside of the classroom (Nanclares and Rodríguez, 2016). Findings of the study revealed that there is a statistically significant difference between the classroom learning environments of the two groups, results showed that flipped classroom students were more satisfied from the innovative classroom learning environment. There were some limitations in this study. First, the experimental setting was not ideal as participants could not be randomly assigned. Moreover, the related threats could not be controlled but the study proved to be first step towards implementation of constructivist strategies to improve teacher training program in Pakistan.

Conclusion

The constructivist approach considers the instructor as a guide and the students as active learners. The support of the teacher was at doorstep and the students were satisfied from the support of instructor which made the classroom learning environment more conducive for teaching and learning. It was concluded from the above findings that the classroom learning environment was more innovative in flipped classroom as compared to traditional classroom learning environment. It was recommended that emerging teaching strategies should encouraged by the higher authorities and professional institutions at all levels of education.

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