

EXPLORING STUDENTS' MOTIVATIONAL ENGAGEMENT IN FLIPPED LEARNING AFFECTING ACADEMIC ASPIRATIONS

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Abstract

The flipped classroom model of instruction is a new method of instruction that seeks to enhance student' participation and contribution using technology to provide lessons outside of the classroom and integrating tasks and exercises with internal beliefs via educational activities. The study focuses the factors affecting students' motivational engagement in flipped learning. This study's goal is to look into the impact of students' motivational engagement in flipped learning on their academic aspirations. Conceptual framework is developed keeping in mind the expectancy value theory. The conceptual framework was developed to explore the interaction between interest value, utility value, task difficulty, self-efficacy- teaching quality, collaboration, elaboration and platform quality and their association with student's motivational engagement in flipped learning context. This framework is bases on EVT. The study is quantitative and descriptive survey research design was used. Self-develop research questionnaire was used to collect data. Based on data from a survey of 310 undergraduate students from education department of four universities in Punjab Pakistan by using simple random sampling technique. Collected data was analyzed by using statistical software (SPSS) and hypothesis was tested by using chi square test. The results show that, the proposed model provides more explanatory power; thus, the results provide insights for university teachers to devise effective teaching strategies to increase students' motivational engagement in a flipped learning environment. Based on the finding it is suggested to use flipped learning teaching strategy by teachers in classrooms to improve the teaching learning process.

Keywords: Academic aspirations; Blended learning' Flipped learning; Motivation; Students' engagement;

INTRODUCTION

The need for active learning recognized in modern decade, for this purpose an instructional strategy growing in popularity is flipping the classroom (Ranellucci et al., 2021). Concept of flipped learning is based on rapid technological innovation, increased student's interaction in classroom (Subramaniam & muniandy, 2017). Demand for technologically enhanced and students-centered knowledge environment, FL has recently become more popular in education (Lai et al., 2021). The flipped learning model originated in 2007 with two high school teachers Jonathan Bergmann and Aaron Sams (Sohrabi & Iraj, 2016). Flipped learning has recently become more popular in higher education (Lai et al., 2021). According to Abeysekera and Dawson, (2014) Flipped learning is a set of pedagogical strategies that require students to complete their task in order to maximize the value of them in class work. A better learning environment created when pupils have a deeper comprehension of the subject matter (cilliers & pylman, 2020). Pre- recorded video lectures are a popular way to move training from the classroom to the outside world (Ranellucei, et al., 2021). The degree of students' engagement is a strong predictor of learning, achievement and academic growth in flipped learning (Subramaniam & muniandy, 2017). Students' engagement is a students' willingness, needs, desire motivation and accomplishment in the learning process (Bomia & Colleagues 1997). Motivation is one of the major reason that student



engaged in their classrooms (Gunuc 2014). Yang (2000) discovered that a persons’ motivation is the most important factors in determining whether they will participate with real. According to research in the literature, the flipped learning concept has raised students’ accomplishment level as revealed by Kettle (2013). Students with higher motivation had higher motivation level (Kettle, 2013). Chang (2006) pointed out that the priority is to stimulate learners’ learning motivation when teachers teach. Students utilize technology in a verity of ways every day, and teachers have been using it to their benefit in a verity of classrooms for many years (Large et al., 2000). The use of immersive technology has explored in recent study on flipped learning (Lin & Hwang, 2019). Many governmental units from different countries have encouraged schools at all levels to implement flipped learning (Cheng, S C et al., 2020). In the flipped classroom, students watch video- recorded courses outside of class, increasing possibility for meaningful study and practice of numerous academic tasks (Minhas, 2021). Bergmann and Sams (2012) developed the first real version of what is now called the flipped classroom model. Strayer (2007) suggested the term classroom flip to describe the homework/class time swap they were suggesting, and discussion of the flipped seems to have evolved. The component of problem solving process can meet by students with the help of well-planned teaching method (Paul & White, 2017). Teachers arrange in class and out class components necessarily carefully integrated to understand the model (Educause, 2012). It involved shifting work that traditionally completed in the classroom to complete at home and bringing that work into the classroom (Lage et al., 2000). Low students’ attention and a learning environment that supports a surface-level teaching style are two more criticisms of lecture (Alberts et al., 2009). According to roach (2014) students who enjoyed the layout and watched the pre-course materials score highly on achievement.

Purpose of the research

In the developed or even developing countries the flipped learning is now widely implemented at all level. The increased utilization of flipped learning concept in the education sector all over the world has encouraged finding it out in the Pakistani context as well. But it seems alarming that limited research has been found about flipped learning in Pakistan to the best of my knowledge. Keeping the entire situation in mind current study was planned.

Objectives of the study

The main objectives of the study were

1. To identify the factors affecting students’ motivational engagement in flipped learning.
 2. To investigate the effect of student’s motivational engagement on their academic aspirations.
- For this purpose, a survey study was planned.

Research Questions

1. What are students’ perceptions regarding the flipped learning in classroom settings?
2. What are students’ perceptions about implementing and managing a flipped learning in classroom settings?

Demographic profiles of the students.

Table: 1.1 Demographic profiles of the students (N=1559)

Age	Up to 20, F=115 P= (37.10%), 21-30, F=195 P= (62.90%)
Gender	Males= 132 (42.58%), females= 178 (57.42%)
Degree name	B.Ed. (hons) (F=122) (P=39.35%), B.S (F=148) (P=47.74%), B.ED. 1.5 (F=40), (P=12.90%).
Department	Education(F=153,P=49.35%),EducationalTechnology(F=18,P=5.81%),Business Education(F=80,P=25.81%)Elementary Education(F=59,P19.03)
University name	University of Sargodha (F=36, P=11.61%), University of agriculture Faisalabad (F=50,P=16.13%), University of Punjab Lahore (F=198,P=63.9%), Arid Agriculture university Rawalpindi (F=26,P=8.39%).
Flipped learning	1-5(59.35%), 6-10(36.45%), 11-15(2.90%), 16-20(1.29%).

experience	
Learning performance in FL	Excellent=36.77%, good=61.61%, poor=1.61%, very poor=0.00%.
Suggested flipped learning	Yes=98.39%, No=1.61%.

The above table shows the personal information of the respondents regarding their age, gender, degree, departments, university and their learning experience in flipped learning teaching technique and also their suggestions of using flipped learning technique. F=frequency, P=percentage.

LITERATURE REVIEW

The term students' engagement originated from school engagement (Fredricks et al., 2004). Students' engagement refers to "the energy and effort that students employ within their learning community" (Bond et al., 2020). Bergman and Sams (2012) developed the first real version of what is now called the flipped learning although they did not use that term. Strayer (2007) suggested the term classroom flip to describe the homework/class time exchange they were suggesting, and discussion of the flipped learning seems to have evolved from there. Teachers are no longer at the center of the instruction, instead functioning as facilitators; Byron High School is an example of the implementation of the flipped learning (Fulton, 2013). Students today encounter significant cognitive challenges. The components of problem solving process can meet by students with the help of well-planned teaching methods (Paul & White, 2017). A better learning environment is created when pupil have a deeper comprehension of the subject matter (Cilliers & Pylman, 2020). For students' motivation and preparation, teachers arrange in class and out class components necessarily carefully integrated to understand the model (Educause, 2012). Pre-recorded video lectures are a popular way to move training from the classroom to the outside world, allowing up additional class time for engaging activities that deepen understanding of the content (Ranellucci et al., 2021). It involved shifting work that traditionally completed in the classroom to complete at home and bringing that work into the classroom (Lage et al., 2002). Students with higher motivation had higher achievement level (Kettel (2013).

Flipped classroom is widely used at higher education level now (Ruffini, 2014). The opinions about the flipped environment can vary. Some take it simply as another way of implementing student-centered approach and others view it as a cutting-edge approach in the field of education (Honeycutt, 2013). In the flipped classroom the sequence of class works and homework is flipped or switched (Honeycutt & Garrett, 2013). It is considered as a synonym of using educational videos specifically and technology in general for improving learning (Overmyer, 2014). It introduces learning flexibility and blends both the traditional and online world, while focusing on the improvement of instructional contact (Gunyou, 2015).

Theoretical background

There are different models and theories that relates to this study but the most related theory is expectancy value theory. Base on this theory the researcher develops conceptual framework and hypothesis for the study. In EVT, expectancy of success is conceptualized as a task-specific belief in the success of future academic tasks (Trautwein et al., 2012).

This study makes several important contributions to the literature on motivational engagement in flipped learning contexts. First, many studies have adopted EVT to predict academic performance based on expectancy and value components (Eccles & Wigfield, 2002). However, few studies have explored the student's motivational engagement in flipped learning. The examination of subjective value, perceived task difficulty, teaching quality and platform quality and their interactions allowed us to empirically investigate students' motivations in a flipped learning context. The present study's



results indicated that, task difficulty, interest value, teaching quality and platform quality, Utility value, collaboration, elaboration are not only directly associated with students' academic aspirations in flipped learning context, but that the interplay between them is critical. Second, previous studies noted that the lack of a theoretical framework was a concern when discussing educational science and technology issues (Bond, 2020; Crook, 2019). Therefore, based on EVT perspective, we proposed a motivational engagement model, which can be used to predict students' motivational engagement in a flipped learning context affecting their academic aspirations. Finally, we focused on a motivational engagement in flipped learning context. Although EVT has acknowledged the importance of the learning environment and the specific characteristics of the social environment (Chirinos, 2017; Leaper, 2011), previous studies have not considered the role of students' motivational engagement in flipped learning context affecting academic aspirations of the students either theoretically or empirically. The present study's results provide more evidence of motivational engagement in flipped learning. Utility value is defined as students' perceptions of the usefulness of a course for a future career (Andersen & Chen, 2016). Interest value is defined as students' perceptions of enjoyment, liking, and interest in a course (Andersen & Chen, 2016). Task difficulty can be viewed as an expectancy belief and was defined as students' perceptions of the difficulty of completing a task in a flipped learning context (Yeo & Neal, 2004). Task difficulty is one of the main course variables and is highly associated with behaviors in the classroom (Umbreit et al., 2004). Elaboration approaches help pupils retain information by forming internal links between the elements that need to be remembered (Pintrich, 1991). Al-Zahrani (2015) observed that when students collaborate, they increase their communication and critical thinking abilities. Self-efficacy enhancement may alter people's behavior (Bandura, 1977). Abeysekera and Dawson allowing more time in the classroom for engaging activities that help the pupils fully comprehend the subject. Students can post, share, discuss, and contribute on knowledge on the learning platform. Additionally, it can help students learn at their own pace and increase involvement in lesson planning (Lai et al., 2021).

Hypotheses of the study

With the help of literature, EVT theory and conceptual framework we proposed the following hypothesis.

H1: Interest value is significantly associated with Motivational Engagement in flipped learning context.**H2:** Task difficulty is significantly associated with Motivational Engagement flipped learning context.**H3:** Platform quality is significantly associated with Motivational Engagement in flipped learning context.**H4:** Teaching quality is significantly related with Motivational Engagement in flipped learning context.**H5:** Collaboration is significantly associated with Motivational Engagement flipped learning context.**H6:** Self-efficacy is significantly related with Motivational engagement and academic aspiration in flipped learning context.**H7:** Elaboration is significantly associated with Motivational engagement and academic aspiration in flipped learning context.

METHOD

Data collection and participants

- This research study is quantitative and used descriptive research design. Data were collected by distributing a questionnaire survey in undergraduate classes from education department. The respondents were university students randomly selected from four universities in Punjab Pakistan. The questionnaire was distributed by researcher and students were encouraged to complete it. No international students were participated in the study.
- A total of 330 students answered the questionnaire and after some invalid responses were eliminated 310 valid samples were collected from four universities.

Sampling Table

Table 1.2: List of Targeted Universities

	Universities	Number of Sample of students		
		Percentage		
1	University of Sargodha	179	36	11.48%
2	Agriculture University Faisalabad	250	50	16.04%
3	University of Punjab Lahore	1000	198	64.14%
4	Arid agriculture university Rawalpindi	130	26	8.34%
	Total	1559	310	100%

Measurement

To ensure the validity of the questionnaire, the questionnaire was pre-tested by four social sciences teachers. Researcher sought comments to ensure the questionnaire items were appropriate and understandable to reduce ambiguity in the items, and to clarify the wording. Consequently, items were added, modified and deleted following the pretest. Cronbach's alpha and composite reliability were used to evaluate the internal consistency of all variables. Thus adequate reliability of all variables was confirmed. All variables were measured using a five point Likert scale (1=strongly agree, 2=agree, 3=undecided, 4=disagree, 5=strongly disagree). Survey variables were adopted from existing education and motivation literature. Self-efficacy was defined as a student's self confidence in his or her reliability to successfully organize and perform flipped learning tasks (Bandura, 1997). This variable was adopted from (Lai et al 2021). Flipped classroom experience was included as a control variable because previous experience can affect the cognitive process in a new environment and then affect individual behavior (wan, wang & Haggerty, 2008). Students were asked to indicate their previous flipped learning experience (=1-5, b=6-10, c=11-15, d=16-20). Teaching quality was students' perception of a teacher's feedback, diligent attitude, and teaching arrangement in the flipped learning as suitable for the learning environment (Cheng et al., 2014). This variable was adopted from (Cheng et al., 2014). The platform quality was the students' perception that the flipped learning platform was familiar and easy to access (Kim et al., 2014). This variable was adopted from (Kim et al., 2014). Utility value is defined as students' perceptions of the usefulness of a course for a future career, such as taking a math course to meet the requirements for a science degree (Hui-Min-Lai 2021). This variable was adopted from (Hui-Min-Lai 2021). Elaboration techniques assist students in storing material in long term memory

Pilot Testing

- Before the formal questionnaire was distributed, a pilot test was carried out. Thirty undergraduate students were selected randomly for the pilot test and questions with low reliability and low validity were deleted or reworded. The final questionnaire items are shown in Appendix.

Analysis

- Mean, standard deviation, chi square test and regression analysis was used in this quantitative study after this statistical analysis findings of the study were drawn. Frequencies were calculated and presented as percentages via tabulated representation. Moreover, the mean score and standard deviation was calculated in order to identify positive and negative responses. Cronbach's alpha was computed to measure consistency within the responses of students and the cut-off of 0.70 was set to declare good reliability. The following five-point scale was used: a score of 1 was a strongly agree association towards the question, a 3 was undecided, and a 5 was a strongly disagrees association towards the question. Some close-ended questions were also given at the end of questionnaire to get some responses from the students about their experience of using flipped learning.

Reliability of the Instrument

➤ Using SPSS version 16, the Cronbach Alpha reliability method was used to determine reliability. It came to 0.7. Cronbach’s alpha and composite reliability were used to assess internal consistency for all variables. Cronbach’s alpha for all variables was between 0.726 and 0.914, exceeding the threshold of 0.70 (Nunnally, 1978). Thus, all measures showed satisfactory reliability.

Instruments of Measurement

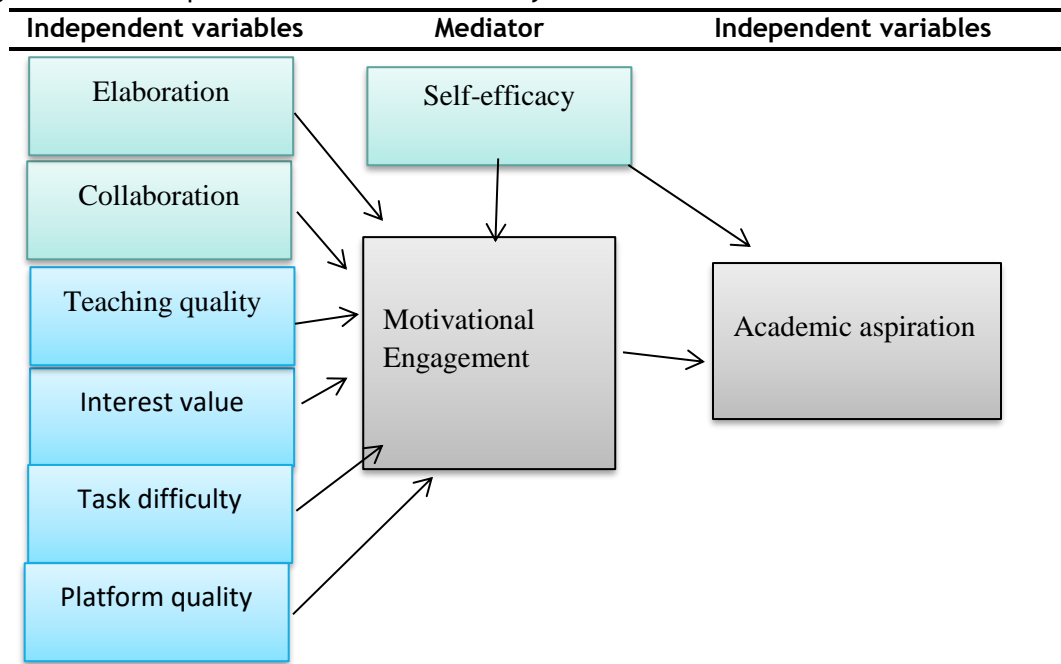
Table 1.3: Instruments of measurement

Variables	References
Interest value	Berger and Karabenick (2011)
Task difficulty	(Sun et al., 2012)
Platform quality	(Kim et al., 2014)
Teaching quality	(Lai et al., 2021)
Collaboration	(Pintrich, 1991)
Self-efficacy	(Lai et al 2021)
Elaboration	(Pintrich, 1991)
Utility value	(Hui min lai., 2021)

The above mentioned table showed the variables in the study and the sources where they were adopted from. These are some independent variable that founded in the literature that affect student’s motivational engagement in flipped learning. These factors affect students’ motivational engagement and engagement of the students effect their academic aspirations as well.

Conceptual framework:

Figure 1.1: Conceptual Framework of the Study





The above figure shows the conceptual framework of the study. This framework includes the dependent and independent variables and also the mediators. The conceptual framework developed with the help of literature. The researcher finds out some factors that affect student’s motivational engagement in flipped learning affecting academic aspirations. In framework there are some indicators of motivational engagement and in last there are the indicator of academic aspirations.

HYPOTHESIS TESTING

Table 1.4: Regression Analysis

Construct	Original sample	Sample mean	STED	T-Test	P-Values	Results
1 IV=ME	0.418	0.424	0.051	8.215	0	Supported
2 TD=ME	0.326	0.335	0.052	6.230	6	Not Supported
3 PQ=ME	0.410	0.352	0.062	6.601	0	Supported
4 TQ=ME	0.492	0.482	0.051	9.650	0	Supported
5 C=ME	0.235	0.216	0.060	3.887	0	Supported
6 SE=ME	0.239	0.260	0.051	4.732	0	Supported
7 E=ME	0.532	0.486	0.054	9.762	0	Supported
8 ME>AA	0.188	0.163	0.65	2.901	0	Supported

STED= Standard Deviation, IV= Interest Value, TD=Task Difficulty, PQ=Platform Quality, TQ= Teaching Quality, SE= Self-Efficacy, E= Elaboration, C=Collaboration, UV= Utility Value, ME= Motivational Engagement, Academic Aspirations.

This table shows the result of the variables regression analysis. Each independent and dependent variable will be a positive and negative correlation depending on the sign of the coefficient. A coefficient that shows the relationship between independent and dependent variables is called original sample. A positive coefficient means that when independent values increases, so the mean of the dependent variable. If the coefficient value is negative, the mean value of the dependent variable will also decrease same as the independent variables increases. The findings demonstrate the presence of statistically, positive and notably substantial influence, and the finding and validate all of the study’s states to the researcher satisfaction. Statistically significant is shown by the T. statistics and P. value. We decide whether to accept or reject null hypothesis that bases on Statistics and P value.

Table 1.5: R-Square adjusted

Construct	R-Square	R-Square adjusted
Interest value	0.180	0.177
Task difficulty	0.112	0.109
Platform quality	0.124	0.121
Teaching quality	0.232	0.230
Collaboration	0.047	0.044
Self-efficacy	0.27	0.23
Elaboration	0.193	0.190
Utility value	0.068	0.065

The coefficient of determination known as R-Square statistical parameter measure how much of the dependent variable’s variance can be attributed to the independent variables. In simple words r-square indicates the degree to which the data confirm to the model. The model accounts 23% variation in teaching quality, 19% variance in elaboration, 18% variance in the interest value R-square.



Table 1.6: Chi-Square Analysis

S.No.	Variables	N	df	p	Cal X2 value	Crit X2 value	Decision
1	IV>ME	310	2	0.003	4.248	5.991	Accepted
2	TD>ME	310	2	0.001	8.644	5.991	Rejected
3	PQ>ME	310	2	0.000	5.098	5.991	Accepted
4	TQ>ME	310	2	0.000	5.274	5.991	Accepted
5	C>ME	310	2	0.037	3.051	5.991	Accepted
6	SE>ME	310	2	0.001	4.249	5.991	Accepted
7	E>ME	310	2	0.000	5.133	5.991	Accepted
8	ME>AA	310	2	0.004	4.674	5.991	Accepted

IV= Interest Value, TD=Task Difficulty, PQ=Platform Quality, TQ= Teaching Quality, SE= Self-Efficacy, E= Elaboration, C=Collaboration, UV= Utility Value. The above mentioned table shows the statistical analysis chi-square results for testing hypothesis, weather to reject or accept null hypothesis. In above table there are chi- square calculated and critical values are given. Based on these values we reject or accept our null hypothesis. If the calculated value of chi-square is less than the critical value it means the null hypothesis is accepted same as if the calculated value of chi-square test is greater than the critical value of chi-square it means the null hypothesis is rejected.

Practical implications

This study yielded several practical guidelines for promoting students' motivational engagement in flipped learning contexts. First, this study showed that students' perceptions of course task difficulty were negatively associated with their motivation in a flipped learning. We suggest that teachers should moderate the course task based on students' perceptions of task difficulty to reduce the difficulty. Several researchers have suggested that instructional design must be carefully considered when teaching difficult subject matter (Merrienboer & Sweller, 2005). We recommend that teachers fully understand students' views on the course and let students know how the teacher has adjusted the instructional design accordingly. Second, interest value was positively associated with students' motivational engagement, but the positive relationship was weakened when perceived task difficulty was high.

Third, teaching quality and platform quality was positively associated with students' collaboration and self-efficacy and high interaction between them strengthened this positive relationship. Therefore, we suggest that teachers should establish incentives to promote teaching quality and platform quality and create better mechanisms for rewarding students output. Also, individual accountability within classroom is an important element of cooperative learning, and each student should be responsible for their own performance (Laal, Geranpaye, & Daemi, 2013). We suggest that before each course task, the teacher should reduce non-contribution by discussing the divisions of labor among the students. We also suggest that at the end of each semester, students who have made the most effort in the classroom should be publicly rewarded. Finally, a high degree of interest value and a moderate degree of task difficulty led to high students' motivational engagement via flipped learning. Previous studies showed that students enjoy interactive classroom activities (Bishop & Verleger, 2013); for example, cooperative technology can contribute to student engagement (Bond, 2020). The study results suggested that it is important to promote high interaction among members in classrooms; for instance, by using online cooperative technologies, such as social learning platforms (Google classroom, Moodle, and Edmodo) and cloud tools (Google Docs). Also, group members should operate as a unit and recognize that the efforts of each member are crucial to the classroom success (Laal et al., 2013). At the same time, teachers should evaluate the difficulty of the flipped learning task. They should also provide students with guidance and help.



RESULTS AND DISCUSSION

This study was carried out to explore student's motivational engagement in flipped learning affecting academic aspirations, and to determine the opinions of students towards flipped learning approach. The result of this study supports the idea that the motivation levels of students increase in active learning and engagement conditions as well as when associating subjects with daily life, increasing their interest in and motivational engagement for the classroom (Tekbıyık and Akdeniz, 2010).

The **first** objective of the study was to identify factors affecting students' motivational engagement in flipped learning. For the purpose to achieve this objective the following research question was proposed, what difficulties do students face in flipped learning? Based on the finding of the data it is concluded that majority of the respondents showed their strong agreement that internet unavailability, poor teacher cooperation, task difficulty, classroom passive environment affect their study badly.

Second, objective was to investigate the effect of students' motivational engagement on their academic aspirations. For achieving this objective there is second research question was proposed that is, how well interested are students with the appropriate and effective use of the flipped learning? It is concluded mostly 90% of the student's response that interesting classroom activities, pre-class preparation, collaboration with peer, interaction with teachers increased their academic aspiration that they are more motivated toward their future goals when they were taught with active teaching technique rather the passive learning. For understanding the proper concept of flipped learning it is necessary to understand the strength and weakness of flipped learning the researcher proposes following research question, what are the student's perceptions regarding the flipped learning in classroom setting. 70% of the respondents showed their strong agreement that flipped learning is a better teaching technique because it involves interesting classroom environment and student does not feel bored in flipped classroom. They also do their home task by their own with the help of educational websites and by watching videos about content; they prepare their self before class this thing increases their higher order thinking skills and provide them better understanding of this technique that will be helpful for them in future because in flipped learning student gain knowledge that they never forget.

The results show that flipped learning is easy to use because students can access the lecture material anytime. Because if the students were not available due to some reasons during lecture or not understood anything that because they can easily access the data. But student don't have awareness about this teaching technique. The method name is new for some undergraduate students in Education Department. Most of the students don't know about the method and technical perspectives of this learning technique. Majority of the students confirm that laptop and internet are the basic requirements for this technique, however, they don't know about other Apps used in this model. 46% of the students, responded that flipped approach facilitate them and also teachers to utilize their time for effective learning and provided them the study material on the classroom.

CONCLUSION

Successful flipped learning requires students' motivational engagement. The active teaching approach is a common instruction strategy in flipped learning, but it is uncertain what determines students' motivational engagement in a flipped learning affecting students' academic aspirations. To this end, we developed a model that drew on EVT perspective to argue why and how course value (interest value, teaching quality, platform quality and task difficulty), academic aspiration (utility value), and a factor (elaboration, collaboration and self-efficacy) may interact with students' motivational engagement in a flipped learning environment. Importantly, this study contributes to theory and practice in different ways. Like the proposed model provides an understanding of the relationships between the variables in flipped learning environment. The model clarifies some of the processes by which personal and group factors relate to students' motivational engagement and enhances understanding of how to improve students' motivational engagement in a flipped learning context.



Then, we proposed how task difficulty and other factor affect students' motivational engagement in flipped learning affecting academic aspirations. At the end, we surveyed 310 students in education departments from four universities in Punjab. Thus, the results provide insights for university teachers to devise effective teaching strategies to increase students' motivational engagement in a flipped learning environment.


As a whole, students convinced that they learned, motivated and engaged more in flipped classroom and enjoyed this way of teaching and learning. Students thought that our traditional education system cannot work with this learning. Furthermore, they appreciated the videos used during intervention. They also share that the videos related to contents may increase their self-learning habit and they did not depend only on teachers. This teaching technique can be suitable approach at university level.

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