Original Article

PERCEPTIONS OF POST GRADUATE STUDENTS ON FLIPPED CLASSROOM

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Abstract

Flipped classroom, as an innovative strategy used in higher education, suits the demands of students at a university level, developing their critical thinking and problem-solving skills. This study examined the perceptions of post graduate students of X University on flipped learning system with respect to gender the stream of education, locale and course of study. The sample of the study consisted of 892 post graduate students, randomly chosen from all the departments of basic science, social science and professional courses of X University. A self-made questionnaire used in order to identify the perceptions of students towards flipped classroom. The analytical descriptive approach was used in this study. Mean, standard deviation, t-test, and One-way-ANOVA were used to analysis data. The present study showed that the post graduate students' perceptions of flipped classroom in the X university were high. This study recommended the necessity of using flipped learning technique at different departments of X university due to its efficiency in developing students' understanding of the curriculum and in motivating them to become active rather than passive participants in the classroom.

Keywords: flipped classroom, post graduate students, curriculum, perceptions.

Introduction

The flipped classroom is the recent innovation in the field of education which became very popular as a way of introducing technology inside the classroom and outside the classroom. It is a student-centred and inspired by the constructivist approach where collaborative learning, critical thinking, communication skill, and interactive learning environment are mostly focused. The flipped classroom approach describes a reversal of traditional teaching where students gain first exposure to new material outside of class usually via reading or lecture videos. Class time is used to do the harder work like problem-solving, clarification of doubts, group discussion, and debates which helps the students to develop skills viz, communication skills, critical thinking, and different innovative ideas.

In the current literature on Flipping the Class room (FTC), a large variety of definitions of FTC can be found (Abeysekera & Dawson, 2015). Different authors define instructional material during class (e.g., by working on problem solving assignments). An issue related to the definition of FTC seems to be whether the use of videos and/or computer technology before class defines FTC (Bernard, 2015). Some researchers define FTC as instructional videos are watching by students in online before class (Cheng, Ritzhaupt, & Antonenko, 2018; Hew & Lo, 2018; Lo, Hew, & Chen, 2017; Scott, Green, & Etheridge, 2016; Strayer, 2012), or receiving computer-based individual instruction outside the classroom (Bishop & Verleger, 2013; Lo & Hew, 2017).

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Flipping model can provide educational opportunities which help students to be more active (Gannod, Burge & Helmick, 2008). Bergmann and Sams (2014) examined other features of flipped classroom, where students can learn depending on "self-paced learning" in any time and place. According to flipped classroom, the preparation of lesson by students can be achieved through assignments, quizzes, multimedia and websites (Karlsson & Janson, 2016). Despite all of the benefits of flipped learning, only students' perception is a crucial factor in determining the success of this strategy in teaching and learning process. Twenty-five of the studies examined learners' perspectives about the use of flipped classrooms. In terms of students' opinions related to flipped classrooms, positive opinions were stated in all the studies: better preparation for the courses, becoming active-learners in the classrooms and easy time-management and more enjoyable classes (Akgün & Atıcı, 2017; Alsancak-Sırakaya, 2015; Aydın, B., 2016; Başal, 2015; Boyraz & Ocak, 2017; Çukurbaş & Kıyıcı, 2016; Özyurt& Özyurt, 2017; Turan, 2015; Urfa & Durak, 2017; Yavuz, 2016;Yılmaz, 2017), more practice opportunities (Adnan, 2017; Kurt, 2017; Turan, 2015), more real-life contexts, socially and psychologically relaxed atmosphere and better less-stressful learning environment (Kurt, 2017;Tugun, Uzunboylu & Özdamlı, 2017; Yılmaz, 2017), student-centred learning environment (Alsancak- Sırakaya, 2015; Kurt, 2017; Urfa & Durak, 2017), easy access to the materials (Adnan, 2017; Alsancak- Sırakaya, 2015; Aşıksoy, Özdamlı, 2016; Çukurbaş & Kıyıcı, 2016; Urfa & Durak, 2017; Yavuz, 2016), self-pace learning (Akgün & Atıcı, 2017; Aşıksoy, Özdamlı, 2016; Aydın, B., 2016; Başal, 2015; Kurt, 2017; Tugun, Uzunboylu & Özdamlı, 2017; Yavuz, 2016),repetition of the content (Alsancak- Sırakaya, 2015), promotion of knowledge retention (Akgün & Atıcı, 2017; Kurt, 2017; Urfa & Durak, 2017), easier comprehension of the content (Akgün & Atıcı, 2017; Boyraz & Ocak, 2017; Özyurt& Özyurt, 2017; Tugun, Uzunboylu & Özdamlı, 2017), increase cooperation and interaction among peers ,increase in self-confidence increase in motivation (Çukurbaş & Kıyıcı, 2016; Sezer, 2017; Şengel, 2016; Tugun, Uzunboylu & Özdamlı, 2017), improvement in self-regulation, self-discipline and learner autonomy (Adnan, 2017), better student-teacher interaction, with a few problems: duration of the videos (Adnan, 2017; Çukurbaş & Kıyıcı, 2016; Turan, 2015;), limited time to the completion of the tasks (Adnan, 2017; Yavuz, 2016; Yılmaz, 2017), unfamiliarity to the method (Kocabatmaz, 2016; Tugun, Uzunboylu & Özdamlı, 2017; Urfa & Durak, 2017), computer and internet problems (Aydın, B., Tütüncü, N.2018). Though many studies have been conducted on flipped classroom approach no such study has been conducted in the north east India in general and X University in Particular. The researcher interested to conduct the study because the findings of the study will help both the teachers and students to adopt new and vital learning styles in teaching learning process. Moreover, this study will draw the attention of decision-makers to the importance of flipped classroom. Hence, the study tries to answer the following research questions:

1. What are the students' perceptions of flipped classroom in the X University?

2. Are there any significant differences in post graduate students of X University' perceptions on flipped classroom based on gender, the stream of education, locale and course of study?

Methodology

The analytical descriptive approach was used in this study. Prior to conduct the research study, ethical approval has been taken from X University research ethical committee and also consent was taken from the X University students. All the post graduate students of X University are the population of the study. The information was gathered from 892 university students with 510 females and 382 males selected through simple random sampling procedure. Out of total participants 224 Arts, 107 Commerce, 284 Science and 277 students are from others. Similarly, 613 are from general and 279 are from professional Courses. With respect to area of residence 374 students are from urban and 518 students are from rural background.

Table 1

Variable	Types	Sample (892)	Percentage (%)
Gender	Male	382	42.61
	Female	510	57.39
Stream of Education	Arts	224	25.06
	Commerce	107	11.97
	Science	284	31.76
	Others	277	31.21
Course	General	613	69.00
	Professional	279	31.00
Locale	Rural	518	58.00
	Urban	374	42.00

An online self-made survey questionnaire was utilised for collection of data by utilising Google forms. The researcher developed a questionnaire with (30) items based on related literature and previous studies such as (Aljaraideh, Y. 2019; Newman et al., 2016; Afrilyasanti et al., 2016; Nouri, 2016 & Khanova, McLaughlin, Rhoney, Roth & Harris, 2015, Ahuja, N,2020). Five-level Likert item (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree) was adopted in the questionnaire of this study. The questionnaire was validated by a group of faculty members of department of education, X University. Their comments were incorporated for preparing the final version of questionnaire. The reliability of questionnaire was checked by distributing the questionnaire to (30) post graduate students outside of the sample of study. After two weeks, the questionnaire was distributed again. The Pearson correlation coefficient was (.72), which is highly reliable. The connection of the semi organized poll was sent through messages, WhatsApp and other social media to the students

who have connected with the contacts of the investigator. Accordingly, the link was sent to the students apart from the primary purpose of contact. Part-A of the survey which incorporate sex, stream of education, area of residence and course. Part-B of the survey questionnaire was to gauge the perception of the students on flipped classroom.

Result and Discussions

Research Question-1 What are the post graduate students' perceptions of flipped classroom in the X University. The perceptions of post graduate students were calculated and computed are presented in the table no-2

Table-2 Perceptions of post Graduate students on Flipped classroom

Slno	Items	Mean (M)	Standard Deviation (SD)
1.	Watching the lessons on video is interesting	3.87	1.11
2.	watching videos and taking notes is more effective in learning	4.05	.968
3.	Flipped classroom help more for preparation of examination	4.12	1.26
4.	In flipped classroom learning is possible as much as while watching video	3.91	1.1
5.	All the teachers may use flipped classroom model	3.86	1.05
6.	My understanding is clarified while using video for learning	3.87	1.63
7.	Flipped classroom encourages to practice critical and creative thinking.	3.76	1.06
8.	Learning foundational content prior to class greatly enhances students understanding	3.87	.974
9.	Flipped classroom gives me the opportunity to ask more questions inside the classroom.	3.94	1.37
10.	Flipped classroom attracts student's attention to learning and teaching process.	4.53	1.15
11.	In this approach students will do more work outside the classroom	3.63	.965
12.	It is a suitable teaching strategy	3.24	.794
13.	It creates interest in exploring topics	4.76	.835
14.	Students felt prepared to complete course tasks in class after listening to the video content	4.13	.893
15.	Flipped classroom is more engaging than the traditional classroom	3.76	1.14
16.	Flipped classroom gives me less class time to practice the concepts of course	3.52	1.01
17.	Flipped classroom reduces the effort to understand the basic knowledge of the subject matter.	3.74	1.36
18.	Flipped classroom is socially and psychologically relaxed atmosphere and better less-stressful learning environment	3.75	1.07
19.	Flipped classroom increases self-confidence and motivation	3.75	1.16
20.	Flipped classroom improved collaborative learning.	4.94	1.25
21.	Promotes student's ability to self-pace learning	3.85	1.37
22.	Flipped classroom gives greater opportunities to communicate with peers	3.24	1.01
23.	Mastering learning through flipped classroom improved	4.14	1.13

	academic achievement.		
24.	Flipped classroom learning has reduced the dependency on the instructor.	3.53	.964
25.	limited time to the completion of the tasks	3.69	.862
26.	duration of the videos will be short	3.65	.763
27.	Flipped courses did not limit my interaction with instructors.	3.67	.549
28.	Flipped classroom discourage in self-regulation, self-discipline and learner autonomy	4.34	1.04
29.	Computer and internet problems	3.02	1.09
30.	Flipped classroom recommended for each student	3.04	1.03

From the above table it is seen that statements like watching videos and taking notes is more effective in learning (M=4.05, SD=0.968), Flipped classroom help more for preparation of examination (M=4.12, SD=1.26), Flipped classroom attracts student's attention to learning and teaching process. (M=4.53, SD=1.15), It creates interest in exploring topics (M=4.76, SD=0.835), Students felt prepared to complete course tasks in class after listening to the video content (M=4.13, SD=0.893), Flipped classroom improved collaborative learning. (M=4.94, SD=1.25) and Flipped classroom discourage in self-regulation, self-discipline and learner autonomy (N=4.34, SD=1.04) has the highest mean with regard to the degrees of agreement. The results of the first question revealed that the perceptions of post graduate students of X University on flipped classroom were high. This means that flipped classroom is considered as a meaningful learning experience which attracts the attention of students; the flipped classroom also could meet students' needs and preferences. The findings are very similar to the findings of previous studies (Aljaraideh, Y. 2019; Blair et al., 2015; Newman et al., 2016; Akgün & Atıcı, 2017; Kurt, 2017; Urfa & Durak, 2017).

The above findings can be interpreted that post graduate students prefer to learn through audio video method and new innovations. Therefore, teachers of the universities can use the multimedia method for teaching students. The multimedia approaches such as picture, video and animation have a great effect on students' learning compared with traditional learning. Flipped classroom learning has reduced the dependency on the instructor and mastering learning through flipped classroom improved academic achievement of the students. Generally, students benefitted from the video lessons being able to pause, rewind, and replay lessons whenever they needed. Flipped classroom helps the students to understand difficult concepts and enjoy the class. Then from the above discussion we can interpret that more video software's like screen casting, presentation tube, google meet, zoom etc will be included in the teaching learning process. Also, the teacher can use the social media like what's app, face book, research gate and linked in to upload the videos and e-contents. Similarly, Massive Open Online Courses (MOOCs) can be developed for the students for learning.

Research Question-2 Are there any significant differences in post graduate students of X University' perceptions on flipped classroom based on gender, the stream of education, locale and course of study?

To answer the second question of the study, means and standard deviations of the students' perceptions of flipped classroom in the X university as based on gender, the stream of education, locale and course of study were computed as presented in Table 3.

Table-3 Means and standard deviations of the students' perceptions of flipped classroom in the X University as based on gender, the stream of education, locale and course of study

Variable		**N**	**Mean (M)**	**Standard Deviation (SD)**
Gender	Male	382	2.98	.597
	Female	510	3.01	.568
Stream of Education	Arts	224	3.58	.584
	Commerce and Management	107	3.77	.627
	Science	284	3.83	.642
Course	General	277	3.74	.692
	Professional	613	3.59	.653
Locale	Rural	279	3.52	.596
	Urban	518	3.27	.641

From the above table it was observed that there is difference in mean scores male and female (M=2.98, SD=.597 and M=3.01, SD=.568), arts, commerce and science (M=3.58, SD=.584, M=3.77, SD=.627 and M=3.83, SD=.642), General and professional (M=3.74, SD=.692 and M=3.59, SD=.653) and rural and urban (M=3.52, SD=.596 and M=3.27, SD=.641) post graduate students of perceptions on flipped classroom.

Table-4 Four-way ANOVA results of the students' perceptions of flipped classroom in the X University as based on gender, the stream of education, locale and course of study

Variables	Sum of squares	Df	Mean Square	F-Value	Sig.
Gender	1.568	1	1.568	2.734	0.048
Stream of	2.937	2	1.4685	2.223	0.78

Education					
Course	1.683	1	1.683	1.402	0.24
Locale	1.316	1	1.316	1.412	0.32
Error	167.54	887	0.1888		
Corrected Total	185.52	892			

From the above table it is seen that p = .048, so there is no significant difference in the student's perceptions of flipped classroom in the X University with respect to gender. It indicates that both male and female students prefer learning through flipped classroom approach. Our results contradicted with previous studies (Aljaraideh, Y. 2019) and similar to (Kenna, 2014; Aşıksoy & Özdamlı, 2016). With regard to stream of education the p value is 0.78 (p>.05). Hence, there is a significant difference in the student's perceptions of flipped classroom in the X University with respect to stream of education. This means that science students prefer learning through flipped classroom approach in comparison to arts and commerce students. This result is very similar to the previous studies (Akgün & Atıcı, 2017; Boyraz & Ocak, 2017; Özyurt& Özyurt, 2017; Tugun, Uzunboylu & Özdamlı, 2017). This may be because of science students have more use of technological gadgets in teaching learning process. Such result shows that the infrastructure and facilities that science students used were different than the arts and commerce students which is similar to results of previous study (Adams et al., 2016). The science students have different attitudes and perceptions towards the flipped class room in comparison to arts and commerce students. Similarly, the p value is 0.24 (p>0.05) with respect to courses of study indicates there is a significant difference between the student's perceptions of flipped classroom in the X University with respect to courses of study. This result shows that Professional course students of X University prefer learning through flipped classroom approach. The professional students are more acquainted with flipped classroom model. The flipped classroom model is an innovative educational trend that has been widely adopted in the engineering education but not in general courses. It may be due to the teachers of engineering department are trained with the new approach of teaching which is student centred. With respect to locale, the p value is 0.32(p>0.05). It indicates there is a significant difference between the student's perceptions of flipped classroom in the X University with respect to locale. This result shows that students from urban background prefer learning through flipped classroom approach rather traditional learning. This may happen due to the urban students are more acquainted with use of technological gadgets in comparison to rural students.

Table-5 Component wise Comparison of Perceptions of post graduate students of X University with respect to gender, stream of education, locale and course of study

	Components											
Variables	**Time**		**Pacing**		**Mastery**		**Videos and Media**		**Flipped classroom approach**		**Others**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Male	6.28	3.01	9.68	4.87	20.51	5.35	22.34	4.01	10.79	3.46	13.34	5.22
Female	7.68	2.66	10.86	3.96	21.72	4.96	21.32	3.49	11.71	3.28	16.98	4.77
Arts	5.46	1.97	7.64	2.36	11.36	5.32	18.97	3.24	10.63	3.25	12.54	3.27
Commerce	6.36	2.51	6.54	3.21	9.87	4.79	16.89	3.63	9.89	3.47	11.57	3.92
Science	5.49	2.78	5.67	2.21	10.56	4.89	23.69	3.94	14.68	3.49	10.53	3.26
General	7.58	3.21	2.23	3.07	11.87	7.68	17.95	3.86	9.63	2.36	10.36	3.91
Professional	6.47	3.07	3.20	3.05	12.46	7.53	25.43	4.32	15.83	4.38	12.47	3.28
Rural	7.56	3.53	3.25	3.21	12.31	7.92	11.58	3.29	10.47	4.82	11.62	4.27
Urban	7.43	2.45	2.57	2.78	9.89	6.25	21.38	4.58	17.49	5.31	15.68	5.31

In order to accomplish the objectives of the study the t-test was applied to study component wise significant differences of perceptions of post graduate students on flipped classroom in relation to gender, stream of education, locale and course of study. The results are given in following tables.

Table 6: Component wise analysis of scores of Students

Components	**'t'**	**Remarks**
Time	3.50	Significant (p< .01)
Pacing	1.90	NS
Mastery	1.68	NS
Videos and Medias	4.62	Significant (p< .01)
Flipped approach	3.84	Significant (p< .01)
Others	1.53	NS

Table -6 indicates that there is significant difference in respect of time, videos and medias and flipped approach of teaching. It was also observed that science and professional students are spending their time at home for completing home assignment by using flipped classroom approach and less time in traditional classroom approach. Post graduate students said that the flipped classroom approach gives less class time to practice. Regarding pacing it is found to be not significant. It examined how students felt about being in a

classroom that was self-paced. Specifically, if they liked self-pacing, if they found it easy to self-pace themselves, and how they felt about taking quizzes at their own pace. It is because many of the students either disagreed or strongly disagreed that they would rather have the entire class move at the same pace. Similarly, many post graduate students either disagreed or strongly disagreed that they dislike self-pacing in the course. The study was in conformity with earlier studies done by Johnson G B (2013). The theme to determine students' perceptions regarding mastery learning in the Flipped Classroom is also not significant. Post graduate students like taking tests and quizzes online using Moodle. Moodle was the mechanism that was used to incorporate mastery learning into Flipped Classroom. This finding is very similar to the study conducted by Sharma, P. (2018). The video lessons are the foundation of the Flipped Classroom, and it was important to inquire about students' perception of this media. This finding also similar to the findings of Snowden, K. E. (2012) It has a significant relationship among the students irrespective male and female, rural and urban, arts, science and commerce and general and professional courses. Most of the professional courses used multimedia for flipped classroom setting. Similarly, the theme flipped approach is also found to be significant (P< .01).

Conclusion

The findings in the study will contribute to the field of flipped classroom research. The first finding is that perceptions of post graduate students of X University on flipped classroom were high. This means that flipped classroom is considered as a meaningful learning experience which attracts the attention of students; the flipped classroom also could meet students' needs and preferences. students in a flipped classroom were doing less homework than in a traditional classroom. students reported that time was spent more efficiently in a flipped classroom. Post graduate students of X university simply enjoyed learning in a flipped classroom. They were able to interact with the teacher more frequently; they enjoyed the increase in learning activities in class; and, they appreciated the reduced amount of homework. Students may benefit from flipped classroom approach by watching videos as per their suit will and their learning needs. These videos can be paused, rewound, and even fast-forwarded when they want to understood a concept. The findings of the research will be helpful for the teachers to induce or inculcate the flipped classroom pedagogy in teaching lessons. The faculty members of the X university in particular and all universities in general will teach their lessons through flipped classroom approach for the betterment of the students. Students may require to achieve more on their formative and summative assessment. Flipped classroom may be a viable mechanism to cater the diverse needs of the learners.

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