

Introspecting Flipped Classroom: A Survey on Higher Education Students

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ABSTRACT

A Flipped Classroom is organised to develop students' understanding of the concepts in a better way, rather than transmitting theoretical lessons through lectures. It provides students the opportunities to access technology-based learning in homely environment as well as the face-to-face interaction in classroom situation. The present study is carried out by the researchers to examine the attitude of Post Graduate level students in Purulia District of West Bengal towards Flipped Classroom. Total 200 Post Graduate level students of Purulia district were taken from Sidho-Kanho-Birsha University as the sample of the study by using Stratified Random Sampling technique. A self-made structured Attitude Scale on Flipped Classroom was developed and used by the researchers to collect necessary data from the sample. The data were analysed by applying proper statistical techniques using SPSS 26. The results revealed that there were no significant differences between the attitude of male and female Post Graduate level students; rural and urban Post Graduate level students; and Post Graduate level students of Language and Social Science group respectively towards Flipped Classroom. No differences were found between the attitudes of Rural Male & Urban Male; Rural Male & Rural Female; and Urban Male & Urban Female Post Graduate level students. There were also no significant differences between the attitudes of Male and Female Post Graduate level students of Language group and Social Science group respectively. Hence, a significant difference was found between the

attitude of Rural Female and Urban Female Post Graduate level students towards Flipped Classroom.

Keywords: Flipped Classroom, attitude, Post Graduate level, Gender, Residence, Stream

INTRODUCTION

Flipped Classroom:

We all are going through an era of globalization where technology has become an inseparable part of each and every aspect of our lives. With the rapid advent of modernization, technology has taken a next step allowing learning to become electronic (Kar, et al. 2014). Flipped Classroom is relatively new term in educational field (Berrett, 2012). The key goal of flipping a classroom is to ensure students' deeper learning experience. It is an active learning strategy that combines student activities, blends various learning methods and also disseminates learning resources in a podcast. Flipped approach provides students the opportunity to electronically share their questions with the teacher at home and receive immediate feedback from the teachers (Bergmann and Sams, 2012). It promotes the active participation of students to make teaching-learning easier and more accessible for the learners. Teachers enhance students' ability for independent problem solving by applying this strategy where they can provide individual assistance to the students. Flipped learning

approach enables students studying through interactive technologies such as watching videos at home online and preparing themselves to apply active learning strategies in the classroom teaching-learning (Roach, 2014). It completely adopts learner centric approach which increases the level of education both qualitatively and quantitatively. Attempts should be made in such a way so that rapidly developed technologies can increase the participation of students in teaching-learning process. Flipped Classroom is proved more beneficial in comparison with the traditional methodologies that are mainly used in higher education (Galindo-Dominguez, 2021). This flipped approach of learning is not exact similar with online learning. Teachers should take the responsibility to create a suitable environment where flipped approach can be implemented successfully. Flipped Classroom approach is accepted worldwide as one of the most popular and activity-based learning approaches. It is considered as a special type of blended learning (Tucker, 2012). Teachers must be skilled enough for proper implementation of this setting.

Significance of the study:

Over the few decades, using traditional teaching-learning method in higher educational level has been criticised a lot in the matter of providing quality education. Traditional lectures organised by teacher causes lacking in intellectual engagement of students in their learning. In this age of technological advancement, the flipped learning has become one of the popular approaches in teaching-learning situation. Post Graduate level is a vital part of educational stages of students where both theoretical and practical knowledge are necessary to orient them towards a successful future; there should be active participation of students while conducting the teaching-learning process. Flipped Classroom setting creates a positive vibrant to the entire learning environment where students can develop their knowledge and

understanding very smoothly. Usage and effectiveness of using Flipped Classroom approach is growing rapidly and students must be concerned about the overall concept and application of this approach. The present study will help to know the attitude of Post Graduate level students towards Flipped Classroom.

LITERATURE REVIEW

ALRowais, S. A. (2014) has carried out a study entitled *The Impact of Flipped Learning on Achievement & Attitudes in Higher Education*. The result showed that there was positive impact of Flipped Classroom upon students' achievement and their attitudes towards studying courses. Adedoja, G. (2016) has conducted a study on Pre-service Teachers' challenges and attitude toward the Flipped Classroom. The result revealed that the pre-service teachers had positive attitude toward flipped learning and that they experienced different challenges such as poor internet connection and power supply among others. Nouri, J. (2016) has conducted a study entitled *The Flipped Classroom: for active, effective and increased learning- especially for low achievers*. The results showed that a large majority of the students had a positive attitude towards Flipped Classroom. They appreciated learning as easier and more effective within the frame of Flipped Classroom. Aljaraideh, Y. (2019) has formulated a study on *Students' Perception of Flipped Classroom: A Case Study for Private Universities in Jordan*. The study revealed that the student's perceptions of Flipped Classroom in the Jordanian private universities were high. The study also recommended the necessity of flipped approach due to its efficiency in teaching-learning process. Manoharan, C. (2019) has conducted a study entitled *Attitude of higher secondary students to Flipped Classroom*. The result revealed that there was significant difference in attitude towards Flipped Classroom among students in terms of gender and locality. Maharani, A. V. et al. (2020) have carried out a study entitled

Indonesian Undergraduate EFL Students' Perception toward Flipped Classroom. The result revealed that students had positive perceptions toward the implementation of Flipped Classroom. The students perceived that it was beneficial for their writing competence. Abuhmaid, M. A. (2020) has conducted a study on *Teachers' Perceptions on the Impact of Flipped Learning on Student Learning and Teacher's Role in Jordanian Schools.* The result showed teachers' overall positive attitude towards flipped learning approach. It was also revealed that female teachers had stronger views that flipped learning can improve students' learning and transform teacher's roles in the classroom and faces challenges. Milhem, B.Q.A.O & Smadi, A.T. (2020) have investigated a study entitled *Undergraduates Attitudes Towards Adopting a Flipped Learning Approach in Jordanian Universities: Empirical study.* The results showed that the flipped learning approach can enable students to learn at their own pace and also motivate them to learn. Mohammad Al-Jarrah, F. I. et al. (2021) have conducted a study entitled *The Effect of Using Flipped Learning Strategy on the Academic Achievement of Eighth Grade Students in Jordan.* The study depicted the effect of using the flipped learning strategy in improving students' academic achievement. Ngo, H. K. & Yunus, M. M. (2021) have formulated a study on *Flipped Classroom in English Language Teaching & Learning: A Systematic Literature Review.* On the basis of the findings of this review, it can be said that most of the English teachers and learners agreed that Flipped Classroom approach can bring benefits to the English language teaching and learning practices. Shana, Z. & Alwaely, S. (2021) formulated a study entitled *Does the Flipped Classroom Boost Student Science Learning and Satisfaction? A Pilot Study from the UAE.* The result showed that the students were highly satisfied with the Flipped Classroom. A connection was revealed between Flipped

Classroom instruction and students' learning.

Objectives of the study

The objectives of the present study are:

1. To study the difference between Male and Female Post Graduate level students in their attitude towards Flipped Classroom.
2. To find out the difference between Rural and Urban Post Graduate level students in their attitude towards Flipped Classroom.
3. To know the difference between Post Graduate level students of Language group and Social Science group in their attitude towards Flipped Classroom.
4. To find out the difference between Rural Male & Urban Male Post Graduate level students in their attitude towards Flipped Classroom.
5. To find out the difference between Rural Female & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.
6. To find out the difference between Rural Male & Rural Female Post Graduate level students in their attitude towards Flipped Classroom.
7. To find out the difference between Urban Male & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.
8. To study the difference between Male and Female Post Graduate level students of Language group in their attitude towards Flipped Classroom.
9. To study the difference between Male and Female Post Graduate level students of Social Science group in their attitude towards Flipped Classroom.

Hypotheses of the study

According to the objectives, following hypotheses are formulated such as:

Ho1. There is no significant difference between Male and Female Post Graduate level students in their attitude towards Flipped Classroom

H₀2. There is no significant difference between Rural and Urban Post Graduate level students in their attitude towards Flipped Classroom.

H₀3. There is no significant difference between Post Graduate level students of Language group and Social Science group in their attitude towards Flipped Classroom.

H₀4. There is no significant difference between Rural Male & Urban Male Post Graduate level students in their attitude towards Flipped Classroom.

H₀5. There is no significant difference between Rural Female & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.

H₀6. There is no significant difference between Rural Male & Rural Female Post Graduate level students in their attitude towards Flipped Classroom.

H₀7. There is no significant difference between Urban Male & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.

H₀8. There is no significant difference between Male and Female Post Graduate level students of Language group in their attitude towards Flipped Classroom.

H₀9. There is no significant difference between Male and Female Post Graduate level students of Social Science group in their attitude towards Flipped Classroom.

Methodology used in the study

Population of the study

All the Post Graduate level students who are studying in Sidho-Kanho-Birsha University of Purulia district, West Bengal are considered as the population of the present study.

Sample and Sampling of the study

Total 200 Post Graduate level students (Language and Social Science group) of Purulia district were taken as the representative sample of the population. Researchers have used stratified random sampling technique to select the required sample.

Total Sample 200			
Students of Language Group- 100		Students of Social Science Group- 100	
Male	46	Male	43
Female	54	Female	57
Rural	86	Rural	84
Urban	14	Urban	16

Delimitation of the study:

Delimitation of a study is a vital part of conducting a research work. It is not possible to study all the aspects of this topic at a time. The present study is delimited in the following manner:

Geographical area

The study was delimited to only Purulia district of West Bengal, India. Samples are taken from Sidho-Kanho-Birsha University of Purulia district.

Level of Education

The study is delimited to only the Post Graduate level students in Purulia District of West Bengal. The students of semester II and IV were considered as the subjects of the study.

Group or stream

The present study is delimited to only the students of Language and Social Science group of this university.

Tools Used in the Study

A structured self-made attitude scale on Flipped Classroom was used by the researchers to collect the necessary data for measuring the attitude of Post Graduate level students of Purulia district towards Flipped Classroom. There are 35 statements in the scale among which 27 statements are positive and rest 8 negative. Each statement has five options – Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. Scores were given to the positive statements as 5, 4, 3, 2, 1 and for negative statements it is 1, 2, 3, 4, 5. The scale is a five-point Likert scale. After the data collection, the responses of participants were scored accordingly.

Procedure

A descriptive survey was conducted by the researchers with the Post Graduate level students by using the attitude measurement scale of Flipped Classroom. Primary data was collected from the students to verify the hypotheses for conducting the study. Participants were invited to give response and requested to fill up all the data of the scale.

Statistics Used

At first the researchers have applied Kolmogorov-Smirnov and Shapiro-Wilk test to check the normality of the collected data with the help of SPSS 26. According to

the result, the significance values are 0.015 and 0.018 respectively which are less than 0.05. That’s why we can say that the data does not follow the Normal Probability Curve, so the data is not normally distributed. Hence, the researchers have applied Mann Whitney U Test (non-parametric test) for analysing the data and testing the null hypotheses.

Normality Test:

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
FC	.071	200	.015	.983	200	.018

a. Lilliefors Significance Correction

Table 1. Normality test on Flipped Classroom

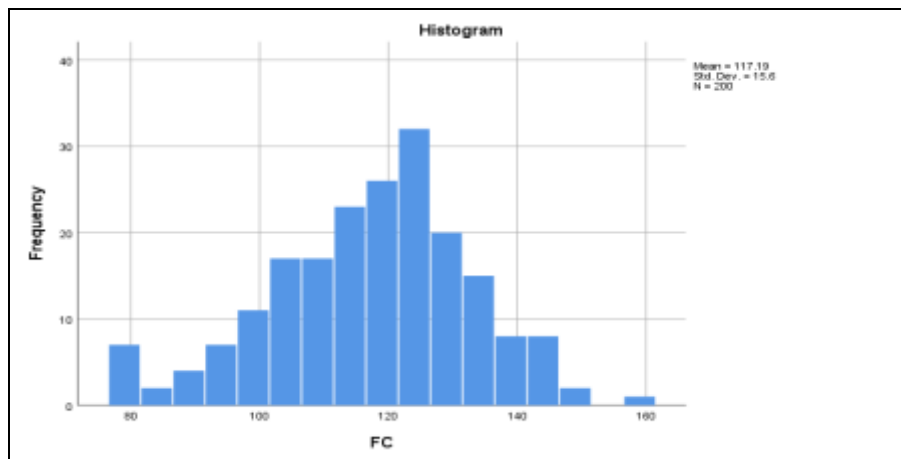


Figure 1. Histogram of Normality test on Flipped Classroom.

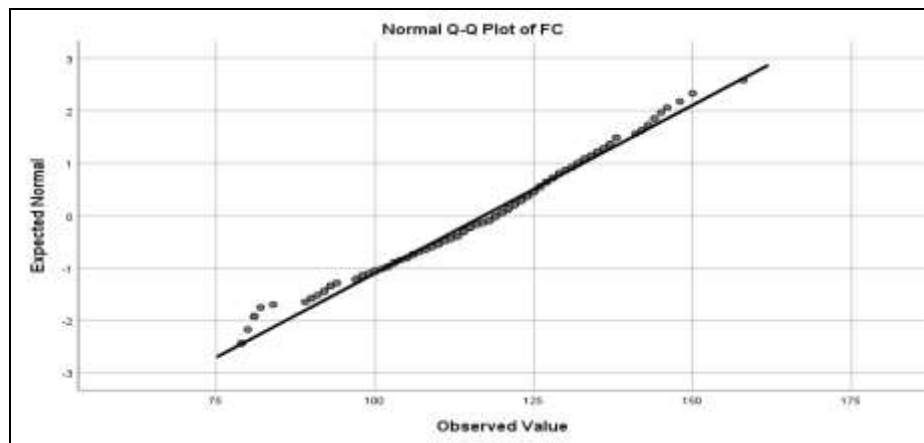


Figure 2. Normal Q-Q Plot of Normality test on Flipped Classroom

In Figure 1, Histogram of Normality test on Flipped Classroom and Figure 2, Normal Q-Q Plot of Normality test on Flipped Classroom shows that the data is not normally distributed.

Analysis and Interpretations

A. Testing of H₀₁. There is no significant difference between Male and Female Post Graduate level students in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of GENDER	Independent samples Mann-Whitney U Test	0.335	Retain the null hypothesis.

Table 2. Mann-Whitney U Test on Flipped Classroom between male and female

According to table 2, the significance value is 0.335 which is greater than 0.05. So, it can be said that H_01 is accepted at .05 level of significance. It means there is no significant difference between the attitudes of Male & Female Post Graduate level students towards Flipped Classroom.

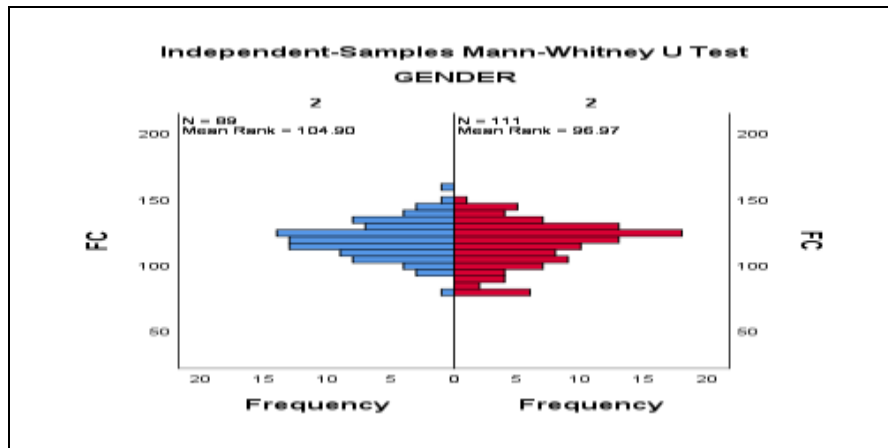


Figure 3. Independent Samples Mann-Whitney U Test on Flipped Classroom between male and female

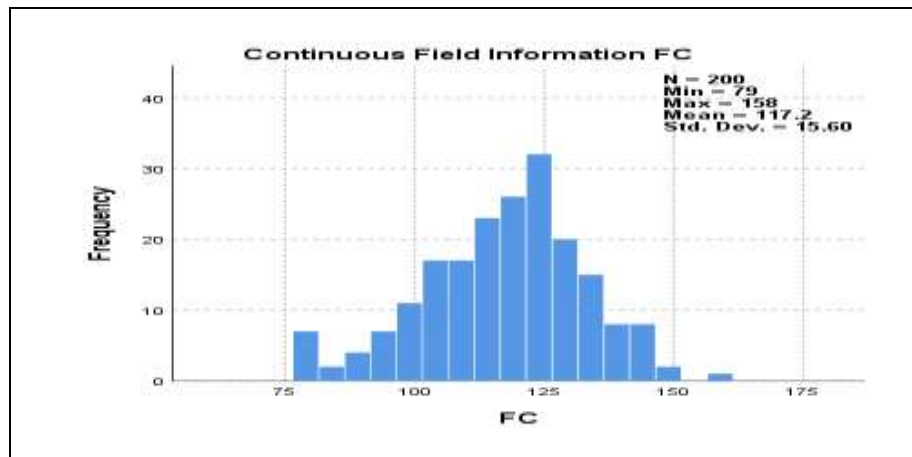


Figure 4. Continuous field information on Flipped Classroom between male and female

B. Testing of H_02 . There is no significant difference between Rural and Urban Post Graduate level students in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of RESIDENCE	Independent samples Mann-Whitney U Test	0.222	Retain the null hypothesis.

Table 3. Mann-Whitney U Test on Flipped Classroom between Rural & Urban

According to this table, the significance value is 0.222 which is greater than 0.05. So, it can be said that H_02 is accepted at 0.05 level. It means there is no significant difference between the attitudes of Rural & Urban Post Graduate level students towards Flipped Classroom.

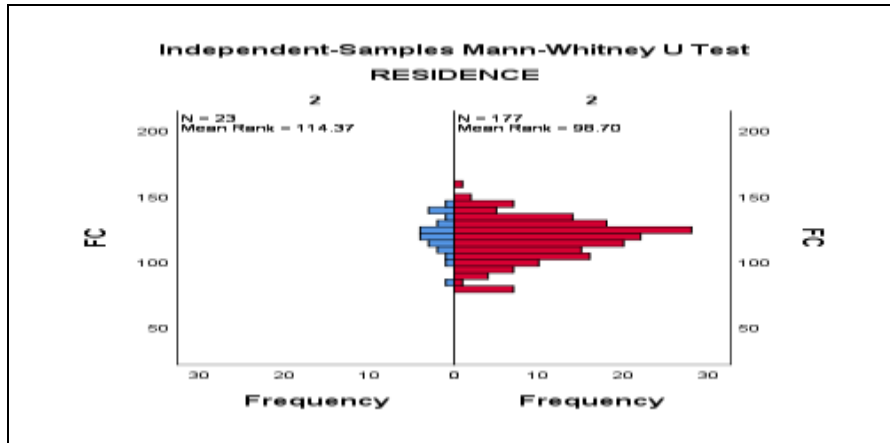


Figure 5. Independent Samples Mann-Whitney U Test on Flipped Classroom between Rural & Urban.

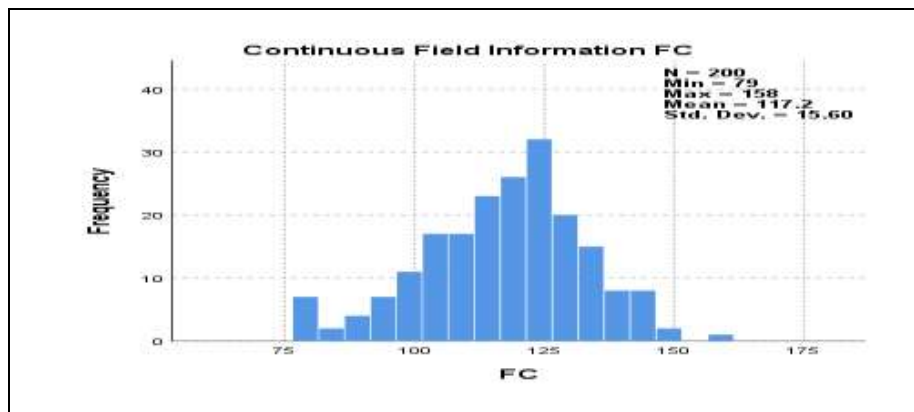


Figure 6. Continuous field information on Flipped Classroom between Rural & Urban.

C. Testing of H₀₃. There is no significant difference between Post Graduate level students of Language group and Social Science group in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of STREAM	Independent samples Mann-Whitney U Test	0.766	Retain the null hypothesis.

Table 4. Mann-Whitney U Test on Flipped Classroom between Language & Social Science group

According to this table, the significance value is 0.766 which is greater than 0.05. So, it can be said that H₀₃ is accepted at 0.05 level. It means there is no significant difference between the attitudes of Post Graduate level students of Language & Social Science group towards Flipped Classroom.

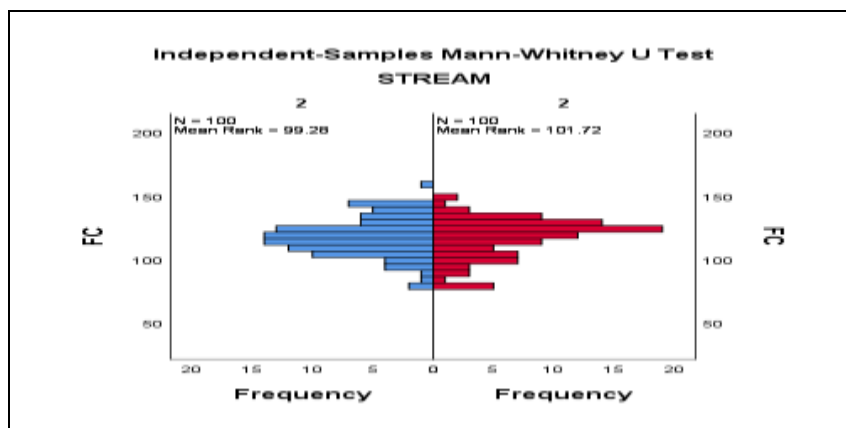


Figure7. Independent Samples Mann-Whitney U Test on Flipped Classroom between Language & Social Science group.

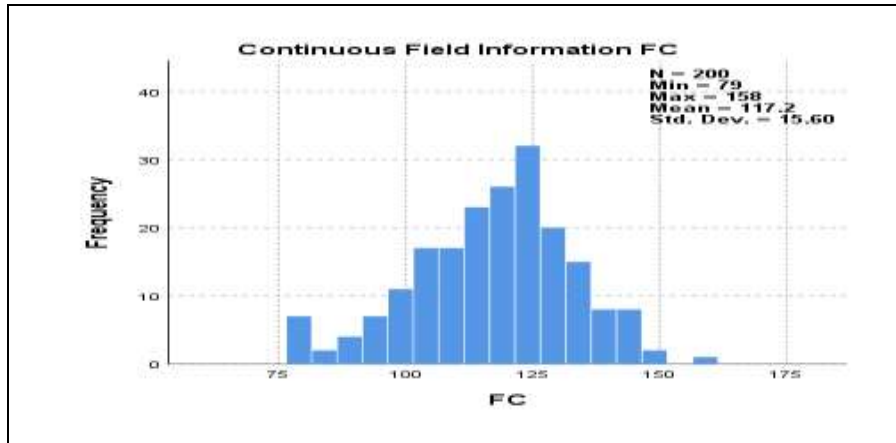


Figure 8. Continuous field information on Flipped Classroom between Arts & Science stream.

D. Testing of H₀₄. There is no significant difference between Rural Male & Urban Male Post Graduate level students in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of RESIDENCE	Independent samples Mann-Whitney U Test	0.385	Retain the null hypothesis.

Table 5. Mann-Whitney U Test on Flipped Classroom between Rural Male & Urban Male.

According to this table, significance value is 0.385 which is greater than 0.05. So, it can be said that H₀₄ is accepted at 0.05 level. It means there is no significant difference between the attitudes of Rural Male & Urban Male Post Graduate level students towards Flipped Classroom.

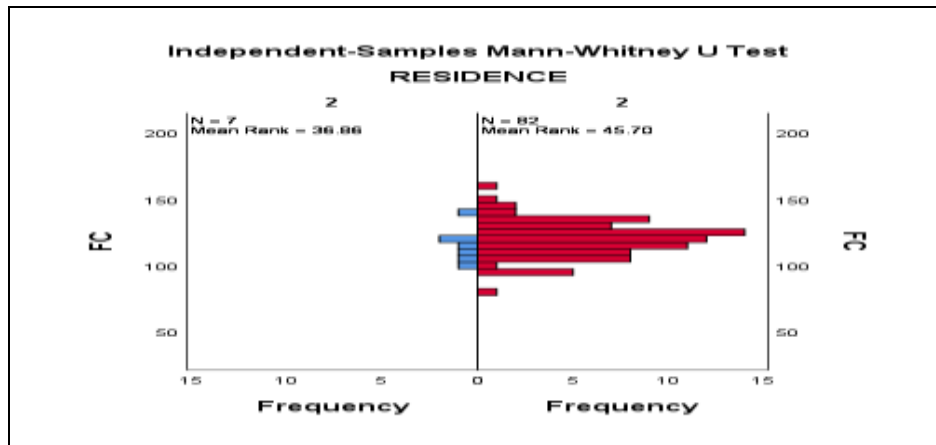


Figure 9. Independent Samples Mann-Whitney U Test on Flipped Classroom between Rural Male & Urban Male.

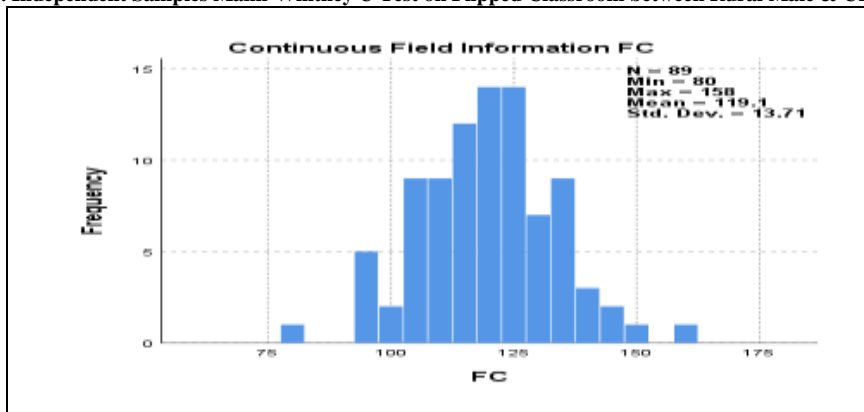


Figure 10. Continuous field information on Flipped Classroom between Rural Male & Urban Male.

E. Testing of H₀₅. There is no significant difference between Rural Female & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of RESIDENCE	Independent samples Mann-Whitney U Test	0.040	Reject the null hypothesis.

Table 6. Mann-Whitney U Test on Flipped Classroom between Rural Female & Urban Female.

According to this table, the significance value is 0.040 which is less than 0.05. So, it can be said that H₀₅ is failed to be accepted at 0.05 level. It means there is a significant difference between the Rural Female & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.

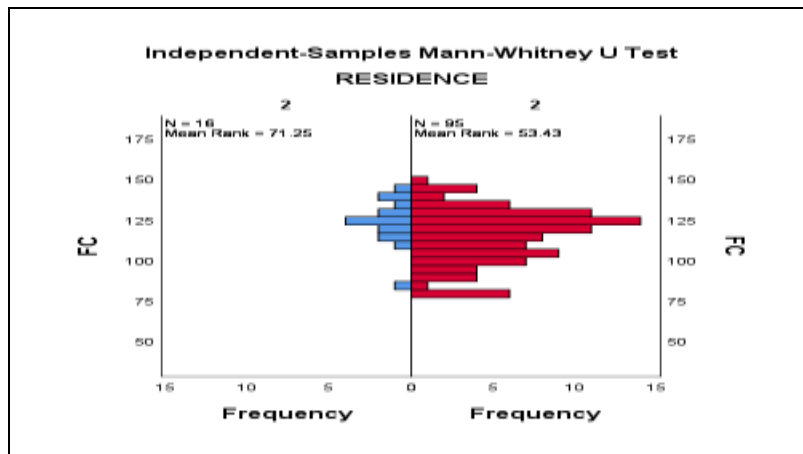


Figure 11. Independent Samples Mann-Whitney U Test on Flipped Classroom between Rural Female & Urban Female.

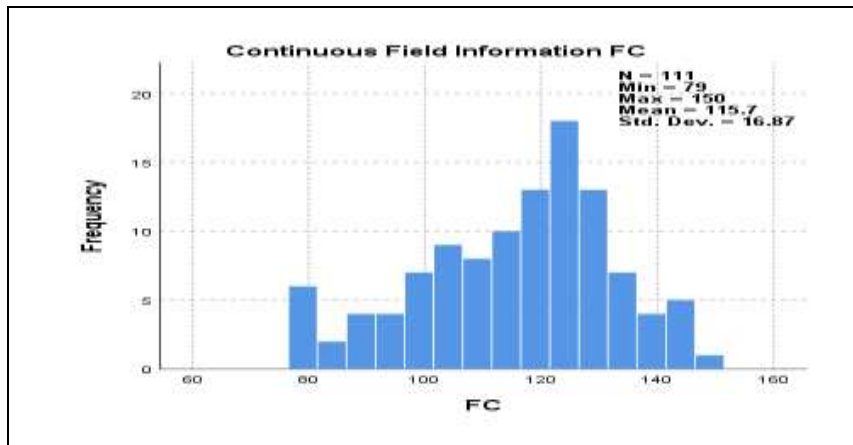


Figure 12. Continuous field information on Flipped Classroom between Rural Female & Urban Female

F. Testing of H₀₆. There is no significant difference between Rural Male & Rural Female Post Graduate level students in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of GENDER	Independent samples Mann-Whitney U Test	0.091	Retain the null hypothesis.

Table 7. Mann-Whitney U Test on Flipped Classroom between Rural Male & Rural Female

According to this table, the significance value is 0.091 which is greater than 0.05. So, it can be said that H₀₆ is accepted at 0.05 level. It means there is no significant difference between the attitudes of Rural Male & Rural Female Post Graduate level students towards Flipped Classroom.

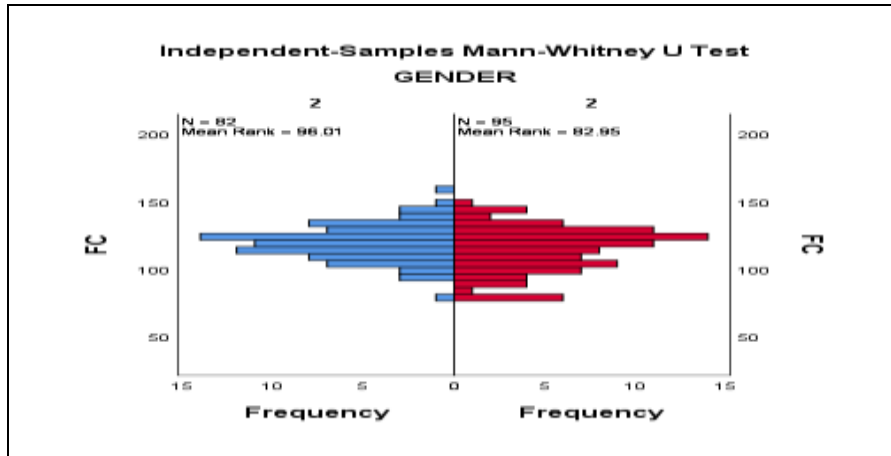


Figure 13. Independent Samples Mann-Whitney U Test on Flipped Classroom between Rural Male & Rural Female

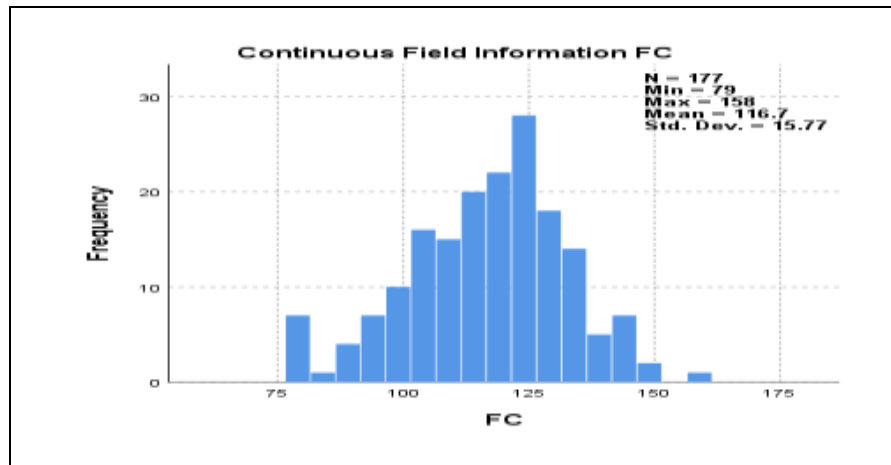


Figure 14. Continuous field information on Flipped Classroom between Rural Male & Rural Female

G. Testing of H₀₇. There is no significant difference between Urban Male & Urban Female Post Graduate level students in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of GENDER	Independent samples Mann-Whitney U Test	0.103	Retain the null hypothesis.

Table 8. Mann-Whitney U Test on Flipped Classroom between Urban Male & Urban Female

According to this table, the significance value is 0.103 which is less than 0.05. So, it can be said that H₀₇ is failed to be accepted at 0.05 level. It means there is a significant difference between the attitudes of Urban Male & Urban Female Post Graduate level students towards Flipped Classroom.

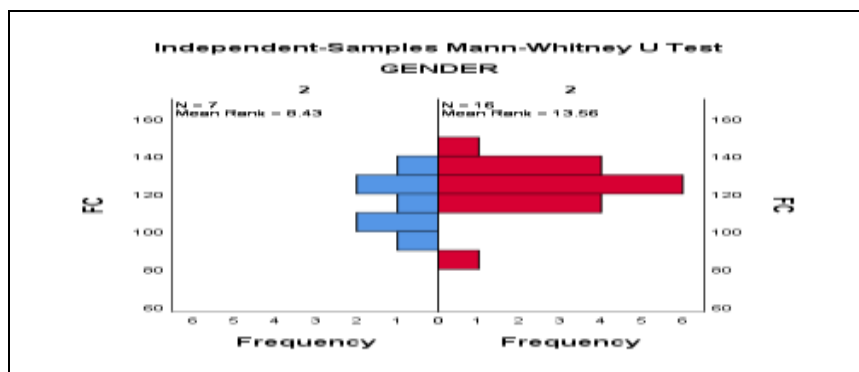


Figure 15. Independent Samples Mann-Whitney U Test on Flipped Classroom between Urban Male & Urban Female

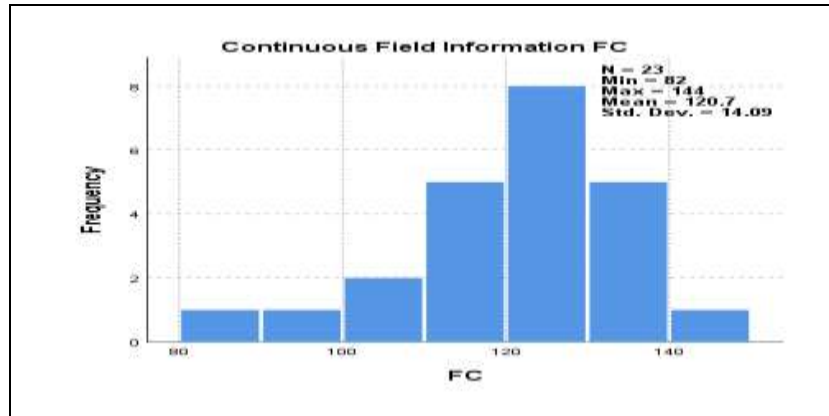


Figure 16. Continuous field information on Flipped Classroom between Urban Male & Urban Female

H. Testing of H₀₈. There is no significant difference between Male and Female Post Graduate level students of Language group in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of GENDER	Independent samples Mann-Whitney U Test	0.580	Retain the null hypothesis.

Table 9. Mann-Whitney U Test on Sustainable Flipped Classroom of Male and Female PG students of Language group

According to this table, the significance value is 0.580 which is greater than 0.05. So, it can be said that H₀₈ is accepted at 0.05 level. It means there is no significant difference between the attitudes of Male and Female Post Graduate level students of Language group towards Flipped Classroom.

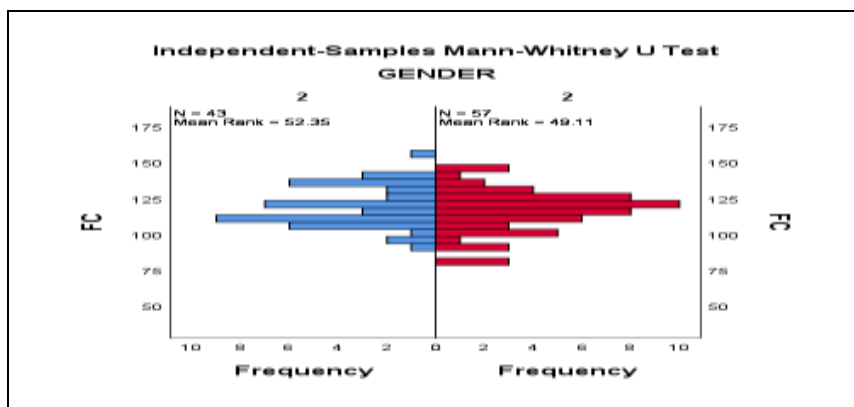


Figure 17. Independent Samples Mann-Whitney U Test on Flipped Classroom between Male and Female PG students of Language group

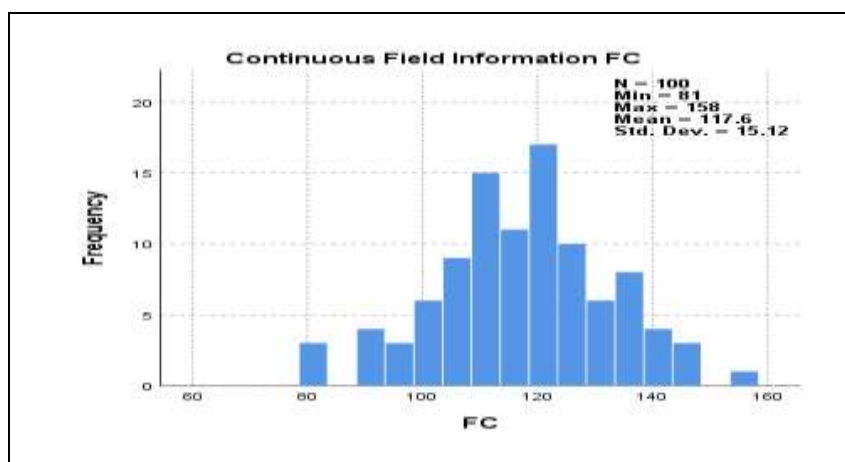


Figure 18. Continuous field information on Flipped Classroom between Male and Female PG students of Language group

I. Testing of H₀. There is no significant difference between Male and Female Post Graduate level students of Social Science group in their attitude towards Flipped Classroom.

Null Hypothesis	Test	Sig.	Result
The distribution of Flip Classroom is the same across categories of GENDER	Independent samples Mann-Whitney U Test	0.633	Retain the null hypothesis.

Table 10. Mann-Whitney U Test on Flipped Classroom between Male and Female PG students of Social Science group

According to this table, the significance value is 0.633 which is greater than 0.05. So, it can be said that H₀ is accepted at 0.05 level. It means there is no significant difference between the attitudes of Male and Female Post Graduate level students of Social Science group towards Flipped Classroom.

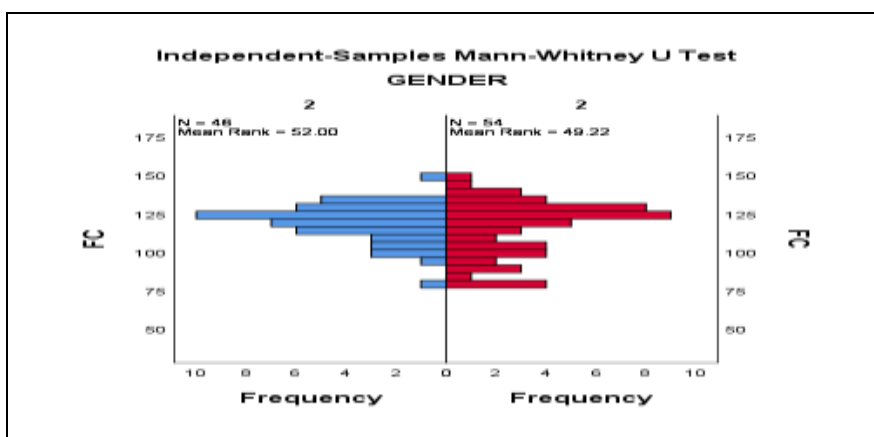


Figure 19. Independent Samples Mann-Whitney U Test on Flipped Classroom between Male and Female PG students of Social Science group

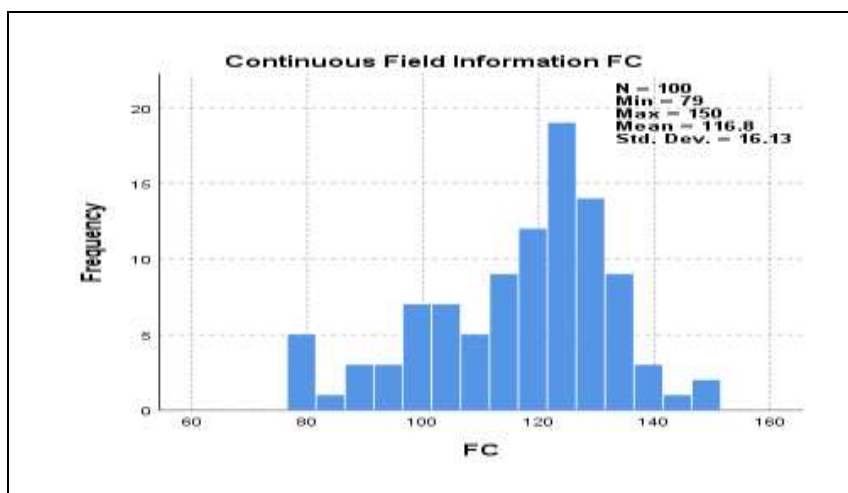


Figure 20. Continuous field information on Flipped Classroom between Male and Female PG students of Social Science group

DISCUSSIONS

Flipped Classroom offers students the scope of learning outside the institutional boundaries. By analyzing several studies on Flipped Classroom, it can be said that majority of students have expressed their satisfaction and positive attitude towards this approach as it increases self-learning skills of them (Nouri, J. 2016;

Balasubramanian et al. 2022). It makes the process of learning more enjoyable and vibrant than the traditional lecture classes. In the present study the researchers have tried to investigate whether there is any significant difference in attitude of Post Graduate level students towards to Flipped Classroom in respect to Gender, Residence and Stream. In result it was found almost

similar attitude between Male and Female; Rural and Urban; & Language and Social Science group of Post Graduate Level students. A significant difference was found between the attitude of Rural Female and Urban Female Post Graduate level students in regard to Flipped Classroom. Manoharan, C. (2019) has found significant difference in attitude towards Flipped Classroom among students in terms of gender and locality in his study. Flipped Classroom has emerged as a comparatively new pedagogical approach which is based on learner centric activities. A large number of higher educational institutions are implementing this kind of combined approach in teaching-learning process.

CONCLUSION

From the above study it is concluded that there is no significant difference between the Post Graduate level students in their attitude towards Flipped Classroom irrespective of their gender, residence and stream. Students' positive attitude towards Flipped Classroom is helpful for conducting this kind of technology-oriented teaching-learning. It enables students to engage actively with the setting which is more flexible and easier to organize as self-paced learning. There are several studies conducted in India and abroad which demonstrates that students are highly satisfied with their learning through Flipped Classroom strategy. In terms of interaction with peers and teachers, this strategy is very much beneficial for students as it helps to switch passive learning into more active and student centric learning with the adequate usage of technology. Flipped Classroom setting occupies a popular platform day by day as it provides students the scope of technology-based learning in addition with the face-to-face classroom interaction. It is a kind of mixed erudition where students are permitted to learn subjects at home while putting their knowledge into practices in the classroom. There is a strong link between students' academic performance and the use of digital Medias as educational resources

(Khalil et al. 2021). With the extreme advancement of technology, it can be concluded that the implementation of Flipped approach in teaching-learning will become a favorable part in each and every aspect of future education.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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