

Identification of Opinion Difference in Teaching Learning Methods and Recommendation to Faculty

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Abstract:

Today's teaching learning process in education comprises variety of tools and techniques. A large number of active learning strategies are identified to make the student active and engaging. In spite of these developments, conventional style of passive teaching also exists. Research reviews ensure the fact that the practice of the active learning strategies engage the students positively and promote their performance. There is a concern whether the strategies are practiced rightly and always been a success. The inclusion of active learning strategies by the teachers is always made with the assumption that all the students enjoy and get engaged in learning. Is it the truth really? This research work attempts to find the difference in the perspectives of students and teachers in practicing different active learning methodologies. Few commonly used teaching learning strategies are identified, practiced and reviewed by a set of teachers and the students. The analysis of the obtained data reveals the existence of gap between their perspectives and indicates the need of adopting suitable pedagogy in implementing those strategies.

Keywords:

Teaching learning, Teacher perspective, Student perspective, Useful learning, Enjoyable learning

1. Introduction

With the millennial learners, Teaching is not an easy task now. There are rapid developments in the field of Education in terms of teaching learning processes. Lectures and black board teaching were the predominant teaching tools in the older days. Home works and written assignments were the important parts of the process. But now, after the developments in the teaching learning process, there are new jargons in education such as active learning, collaborative learning and cooperative learning. Active learning, a set of prescribed teaching learning strategies, has been recognized globally as a teaching learning method that engages students and makes learning enjoyable.

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The learning sessions carried out with these strategies are said to be impacting student performance and engagement level. Most of the educational institutions have started supporting their faculty by giving training in these methods and insisting them to follow in their classroom. In India, National level programmes such NMEICT have been conducting special hands on training for teachers across India on these strategies. ICT tools have been introduced to associate with these active learning methods for providing digital support. Learning Management Systems, Student responsive systems and digital repositories are part of modern education.

The present teachers are now required to develop not only their technical skills but also their pedagogical skills. When practicing these strategies, there are some common assumptions among teachers. When teachers get trained in these innovative teaching learning methods and start practicing inside the classroom, they assume to get the attention of 100% of their students. They strongly believe that the strategies they follow have nearly 100% positive impact on the students [1][2]. Also, there is some common belief among them that some teaching learning methods are not useful to the students. A teacher may be comfortable and strong in practicing a teaching learning method but the concern here is whether the students feel comfortable in practicing it[5]. This concern leads to this research as "Do all the students experience the same and find those methods useful?". Also this research provides insights about the preferred teaching learning methods of students and thus bridging the gap between assumptions and reality.

2. Research Questions

The proposed research work is carried out with the following Research questions.

1. Teachers may follow any teaching learning method based on their personal assumptions. Do these assumptions match the student expectations?
2. What are the suitable recommendations to address the perspective gap between students and teachers in conventional teaching learning methods and modern teaching learning methods?

3. Methods and materials

The method of data analysis is a survey which includes questions on various teaching learning methods under three point likert scale and also descriptive responses [3][4]. The experiment has been conducted in an autonomous engineering institution. Out of 150 teachers who have been trained in active learning strategies in the institution 44 teachers participated in the survey. Out of 900 graduating students 190 undergraduate students and 55 post graduate students have participated in the survey. The survey aims to find the usefulness of teaching learning methods and the level of enjoyment that they instil. Five conventional methods and five modern methods have been chosen as listed in Table 1. The students and teachers are familiar with these methods and have used them for at least a semester period.

Table 1. List of teaching learning methods chosen for the experiment

Conventional teaching learning method	Modern teaching learning method
Black board teaching (BB)	Think Pair Share (TPS)
Power point presentations (PP)	Flipped Classrooms(FC)
Group discussion inside class (GD)	Online discussions (OD)
Written assignments(WA)	Online assignments(OA)
Student seminars(SS)	Student role plays (RP)

An online questionnaire has been used to collect data from the teachers and the students who are willing to participate in the survey. Figure 1 & 2 displays a part of the questionnaire. The questionnaire is developed with the intention of finding the usefulness and enjoyable nature of these methods and hence the questionnaire directly addresses these two parameters. 3-point likert scale has been used in the questionnaire. If the students are not familiar with any of the teaching learning method, they can choose "Activity Not done". These responses are added to the count of neutral responses.

Teacher Feedback on various teaching learning Activities

Dear teachers, you have come across different teaching / learning strategies in all these years. This is to know the effect of various teaching learning activities.

4. Match the teaching activity with student learning *

Check all that apply.

	Useful in learning	Neutral	Useless in learning	Activity not done
Teaching with games	☐	☐	☐	☐
Think - Pair - share	☐	☐	☐	☐
Regular Black board teaching	☐	☐	☐	☐
PPT presentation - lecture	☐	☐	☐	☐
Class tests / one minute papers / Quiz	☐	☐	☐	☐
Demonstrations using hardware	☐	☐	☐	☐
Demonstrations using software	☐	☐	☐	☐
Collaborative learning	☐	☐	☐	☐
Rubrics based evaluation	☐	☐	☐	☐
Flipped Classroom	☐	☐	☐	☐

Figure 1. Survey Questionnaire for teachers

Feedback on various teaching learning Activities

Dear students, you may come across different teaching / learning strategies in all these semesters. This is to know the effect of various teaching learning activities

4. Have you enjoyed the following? *

Check all that apply.

	Enjoyable	Neutral	Not enjoyable	Activity not done in any course
Games inside the class to learn certain topics	☐	☐	☐	☐
Interacting with friends	☐	☐	☐	☐
Online Discussion	☐	☐	☐	☐
Submission of online assignments	☐	☐	☐	☐
Peer assessment/Evaluating the friend	☐	☐	☐	☐
Role play/ stage activities	☐	☐	☐	☐
Think - Pair - share with friends	☐	☐	☐	☐
Written assignments and home works	☐	☐	☐	☐
CAT exams	☐	☐	☐	☐
Terminal exams	☐	☐	☐	☐
Regular Black board teaching	☐	☐	☐	☐
PPT presentation - lecture	☐	☐	☐	☐
Class tests / one minute papers / Quiz	☐	☐	☐	☐

Figure 2. Survey Questionnaire for students

After collecting the responses a statistical study is performed in analysing the obtained data. Comparison of responses of teachers and students for each method has been represented in terms of percentage. Wilcoxon–Mann–Whitney test has been used with the null hypothesis of "There is no significant difference in the opinion of students and teachers". This test has been applied to the responses about individual teaching learning method. As both the groups are independent and the responses are ordinal with 3-point likert scale, two – tailed Mann Whitney test has been selected for accepting or rejecting the null hypothesis with the p-value of 0.05. This test answers to the Research question 1. Based on further observations in obtained data, perspective gap in few teaching learning methods are analysed and suitable methods are recommended to bridge the gap. This stands as an answer to Research question 2.

4. Results & Discussion:

From the responses obtained from the participant groups, the results are presented in this section. As there are two parameters (usefulness, enjoyable nature) addressed in this research work, Table 2 tabulates the result obtained for various teaching learning methods with the percentage of participants who have declared that a particular teaching learning method is useful.

Table 2. Percentage of participants positively agreed upon the usefulness of the method

Teaching learning method	Teachers	% of Undergraduate students	% of Postgraduate students	% of All students
BB	45.45	62.16	47.73	54.32
PP	63.63	40.54	45.45	43.21
GD	45.45	58.33	75	66.67
WA	18.18	64.86	20	44.78
SS	72.72	55	56.41	55.71
TPS	81.82	81.08	56.82	67.90
FC	45.45	46	46.51	46.25
OD	72.73	58.33	46.88	52.94
OA	63.63	62.86	56.41	59.46
RP	54.54	69.44	63.64	66.25

Table 3 presents the percentage of students who have found that the particular teaching method is not useful. There is an interesting observation that none of the teaching method was stated as useless by the teachers. Few recommendations to the faculty proposed in this work are based on the data presented in Table 3.

Table 3. Percentage of student participants disagreed upon the usefulness of the method

Teaching learning method	% of Undergraduate students	% of Postgraduate students
BB	1.2	0
PP	3.7	0
GD	0	0
WA	4.4	0
SS	0	0
TPS	0	0
FC	0	0
OD	2.7	0
OA	0	0
RP	0	0

Table 4 depict the perspectives of teachers and students on the enjoyable nature of the method anticipated among students for the tasks assigned to students.

Table 4. Percentage of participants positively agreed upon the enjoyable nature of the method

Teaching learning method	Teachers	Undergraduate students	Postgraduate students	All students
BB	27.27	32.43	25	28.39
PP	63.63	40.54	42.5	41.56
GD	63.63	67.57	62.79	65
WA	27.27	29.73	9.75	19.23
OA & OD	54.54	56.76	29.55	39.51
Homework	27.27	29.73	36.36	33.33
RP & TPS	63.63	67.57	62.79	65

Table 5 & 6 show the results of Mann-Whitney test in each of the teaching learning method with respect to two parameters: Usefulness and Enjoyable nature comparing the responses of teachers and students.

Table 5. Mann-Whitney test results for usefulness of the methods

Method	p-value
PP	0.00112
GD	0.01242
SS	0.00672
OD	0.09894
TPS	0.12114
WA	0.17068
OA	0.17384
RP	0.30302
BB	0.37346
FC	0.88866

Teaching learning methods are listed in the increasing order of p-value in Table 5. From Table 5, it is observed that Power point presentation, Group discussion and Student

seminars have p-values lesser than 0.5 and hence indicating there is significant difference in the opinion of students versus teachers. The p-values of other methods are greater than 0.05. So, the null hypothesis is accepted to state there is no significant difference in the opinion of teachers and students in terms of usefulness of these teaching learning methods. Recommendations to the faculty shall be made based on these observations. A similar representation is followed in Table 6 for the parameter 'Enjoyable nature'. Homework has been added to find whether it is enjoyable one for the students. From table 6, it is observed that there is a significant difference in opinions for the methods Homework, Online discussion, Online assignments and Power point presentations in terms of enjoyable nature. Teachers has a presumption that home works are not very much enjoyed by the students which is not so in the minds of students. Also teachers perceive online work as enjoyable one for the students which is not received as such by the students. A similar interpretation exists for power point presentations also.

Table 6. Mann-Whitney test results for enjoyable nature of the methods

Method	p-value
Home works	0.02926
OD	.0114
OA	.0198
PP	0.0271
WA	.41794
BB	0.80258
RP, TPS	0.8181

Apart from the likert scale questionnaire, open feedback is asked from the students as well as faculty[3][4]. In teacher's feedback, the following statements are found to be important

- Most of the present day students are addicted to mobile phones and not interested in reading books
- If Flipped classroom strategy is given, students are not doing out of class activity.
- It takes long time to plan for collaborative and active learning classes

In student feedback, the following statements are found to be important

- Only few faculty are trying active learning strategies which is actually beneficial to them
- Collaborative learning activities are very low and mostly happened only when doing projects
- Some faculty are technically strong but their pedagogy is not good
- Sometimes active strategies provided are too much boring due to inappropriate planning

By observing the results obtained from Tables 2 to 6 and the open responses collected from students and teachers, few interesting facts and recommendations have been

derived and tabulated in Table 7.

Table 7. Facts and Recommendations to faculty

Teaching method	Facts	Recommendations
Black board teaching	Teachers & PG students have found less usefulness of blackboard teaching. However, Under Graduate(UG) students recognize the need of blackboard teaching	Blackboard teaching is even now indispensable especially for students entering higher education. Hence, practice of black board teaching can be followed.
Power point presentations	Teachers regarded as a useful tool Students regarded that they are not as useful and not enjoyable.	Power point presentations backed up with effective pedagogy and student responsive systems shall be followed
Group discussion inside class	Teachers: Underestimated the usefulness of group discussion. Students: PG students welcome the practice	Group discussion shall be used as an effective tool with a good plan to achieve clear outcomes especially in small groups
Student seminars	Teachers: regarded seminar as a very useful tool. Students: They have given only a moderate preference to seminars.	Seminars shall be taken with proper guidelines and there should be assessments for each seminar to ensure learning.
Online discussion and assignments	Teachers have assumed that this method is enjoyable for the students as realized in a research work [6]. But the students differ in opinion.	Focused work shall be given considering the work load of students. Technology which is familiar to students shall be used
Homeworks	In spite of teachers' thought that they are not enjoyable, students like to have homeworks	Regular works shall be allotted to students. Faculty team shall work together to avoid overloading
Written Assignments	Neither the teachers nor the PG students are not very much favour of this	Written assignments may be given occasionally and may involve problem solving
Think Pair Share	Teachers: regarded this as a very useful tool Students: UG students reflected the	As there are enough evidences that TPS brings engaged learning, practice of TPS with relevant

	same view of teachers, but not the PG students	content is to be made. Training may be required to faculty.
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5. Conclusion

This research work is carried out to bring out the opinion differences between students and teachers on the most commonly used teaching learning methods. A survey based data collection is made and data analysis is done with statistical methods. Based on the analysis, it is observed that there is some opinion difference between teachers and students on few teaching learning methods. Specific recommendations based on the analysis are provided taking into account the responses of students and teachers. Few general recommendations based on open feedback are as follows:

1. Continuous improvement in implementation of Active learning strategies based on the effectiveness study need to be exercised.
2. The usefulness of black board and home works cannot be underestimated.

The work may serve the purpose of providing awareness among teachers to revisit their current teaching learning methods and make improvements based on student needs. The future work may involve the analysis of the impact of ICT tools in education.

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