Effectiveness of Technology Enabled Collaborative Learning in Enhancing Academic Achievement Among Higher Secondary Students

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Abstract

Collaborative Learning plays a significant role among learners' learning in the classroom. To enhance the learning, technology enabled classroom will help the students by seeking attention, interest and attitude. Nowadays, one method of learning is not suitable for students with diverse

needs and technology enabled classroom helps to create interest and attention (Govindaraj.S & Sujathamalini.J, 2010). Some students face difficulty in Collaborative Learning and some in technology. This study is an attempt to conduct research to find the effectiveness of Technology Enabled Collaborative Learning in enhancing academic achievement among higher secondary students. For the present study, pretest posttest single group experimental method is used. Twelve Eleventh standard students from Government Girls Higher Secondary School, Thandarampet were selected as samples. Pretest was conducted and accommodate Four students each to three groups according to the pretest marks. Technology enabled Collaborative Learning was taught for five days for all the groups. Posttest was conducted after the treatment of technology enabled Collaborative Learning. The result of the study indicated that the academic achievement (posttest marks) of higher secondary students is higher than the pretest marks. Posttest mean value is higher than pretest mean which showed that technology enabled collaborative learning is more effective in the academic achievement among higher secondary students. The same study may be conducted to the students at various levels of education.

Keywords: Technology, Collaborative Learning, Classroom, Academic Achievement, Higher Secondary Students

Introduction:

Technology is one of the applications of scientific knowledge to the practical aims of human life to the change and manipulation of the human atmosphere. Technology makes different operations more convenient, easier and appropriate. There are different types of technology and they are Artificial Intelligence, Information Technology, Space Technology, Entertainment Technology, Medical Technology, Operational Technology, Assistive Technology, Communication Technology, Super Intelligence and so on.

Assistive Technology enhances the abilities and capabilities of students with diverse needs towards learning the concept through various activities. It also helps the students in

achieving the learning goal through proper learning and understanding of the concept and it helps the students to complete the learning task at ease and to bypass the difficult areas in learning. It includes Computer assisted instruction, computer services, devices etc. Computer Assisted Instruction means that the computer plays a significant role in teaching learning process and during the instruction, the content has to be taught through computer along with instruction by the teacher. The attention and interest among students have increased when teaching through computer (Govindaraj.S & Sujathamalini.J, 2016).

Collaborative learning is one of the learning techniques which is adapted by the teachers in the classroom to enhance the learning of students with diverse needs. It involves the learning of students in groups to discuss the concepts and able to solve the problems as well as find solutions between them and helps the students to develop higher order thinking, various types of communication i.e., oral, written etc. It enhances the self-management and leadership skills among students and provides way to interact with teachers, helps to clarify the doubts and increases student retention ability towards concepts, individuality and self-esteem which led to understanding diverse perspectives as well as provides opportunities for students in developing their rapport, team building and group work plan. During the collaborative learning process, each student in the group assigns different roles such as tutoring, mentoring, learner etc.

Discussion and collaboration within the group members help to develop learning, communication skills and enable to work independently through enquiry. Collaboration fulfills the real purpose of learning in order to solve social, complex and individual problems. Teachers use different teaching aids for better teaching learning process. Many of the teachers use either technology or collaborative learning because of concept and time. The investigators tried to collaborate both technology and collaborative learning in the classroom and conduct research to find the effectiveness of technology enabled collaborative learning in enhancing

achievement among higher secondary students. In future, teachers may arrange collaborative learning strategy in the technology enabled classrooms to enhance learning among students.

Olanrewaju, Muraina Kamilu. (2019) made a study on “Effects of Collaborative Learning Technique and Mathematics Anxiety on Mathematics Learning Achievement among Secondary School Students using Pretest-posttest, control group quasi-experimental design and found a significant difference in the Mathematics learning achievement of secondary school students exposed to collaborative learning technique.

Tatiana, Shubina et al. (2022) experimented on The Changes in Lower Secondary School Students' Interest during Collaborative Learning. This study explored relationship between students' situational interest, emotional valence and their individual interest using collaborative learning. Students showed increasing levels of emotional valence after each collaborative learning task. The relationship between students' emotional valence and their individual interest frequently decreased after collaborative learning tasks. The findings suggest that collaborative learning could be a potential factor in changing situational interest.

Urakova, Fatima K. et al. (2023) headed a study on “Investigating Digital Skills among Russian Higher Education Students”. This study investigated the digital skills of college students. It was found that creating and using digital information requires fewer skills than in other areas. There is no difference based on students' fields of study was supported to a greater extent, but only to a moderate extent.

Velmurugan.P (2022) carried out a study on “Awareness of Information and Communication Technology among Secondary Teacher Education Students”. The data were collected from 150 students and analysed by percentage analysis and 't' test and he found that there is no significant difference between arts group and science group, under graduate and post graduate, rural and urban, married and unmarried, nuclear family and joint family secondary teacher education students in their awareness of information and communication technology.

From the above studies, it is clear that there are number of studies conducted only on technology enabled classroom and collaborative learning enabled classroom among students at various levels. The present study closes the gap and conducted the research on effectiveness of technology enabled collaborative learning in enhancing academic achievement among higher secondary students.

Research Methodology:

Objective:

The main and foremost objective of the study is to find out the Effectiveness of Technology Enabled Collaborative Learning in Enhancing Academic Achievement among Higher Secondary Students.

Hypothesis:

There exists significant difference in the Academic Achievement of Higher Secondary Students through Technology Enabled Collaborative Learning.

Methodology:

For the present study, pretest-posttest single group experimental design was adapted by the investigators. Twelve higher secondary students studying Eleventh standard at Government Girls Higher Secondary School, Thandarampattu was taken as samples for the present study. Pretest was conducted for above said students. Four students were allotted in each group according to the pretest marks. A poem and a prose were taken from Eleventh standard English. Video, text and power point presentation was telecasted to the samples and after that content related discussion in the group was arranged. Two staff members and investigators observed the activities of samples. After a period of five days, posttest was conducted. The level of academic achievement of samples for the above said period is noted.

Analysis and Interpretation:

Table 1: Mark list of samples (Pretest & Posttest)

S.No.	Sample	Marks scored in Pretest	Marks scored in Posttest
1	Haripriya.N	25	40
2	Jagatheeswari.J	26	40
3	Punitha.L	26	38
4	Venda.T	27	42
5	Reka.M	27	46
6	Anusudha.M	27	40
7	Subha.T	28	38
8	Sathya.K	29	40
9	Johana.T.S	30	42
10	Vijaya.L	31	44
11	Seetha.S	32	42
12	Hemalatha.V	34	48

Pretest and posttest marks are listed in the above table. In the table, pretest marks are ranged between twenty-five and thirty four out of fifty among the samples and at the same time the posttest marks are between thirty-eight and forty-eight. The above table reflected that there is an increase in the posttest marks from pretest marks indicated that technology enabled collaborative learning influenced the samples in their English academic achievement. Five days technology enabled collaborative learning enhanced the achievement (marks) of samples from pretest to posttest.

Fig 1: Mark list of samples (Pretest\Posttest)

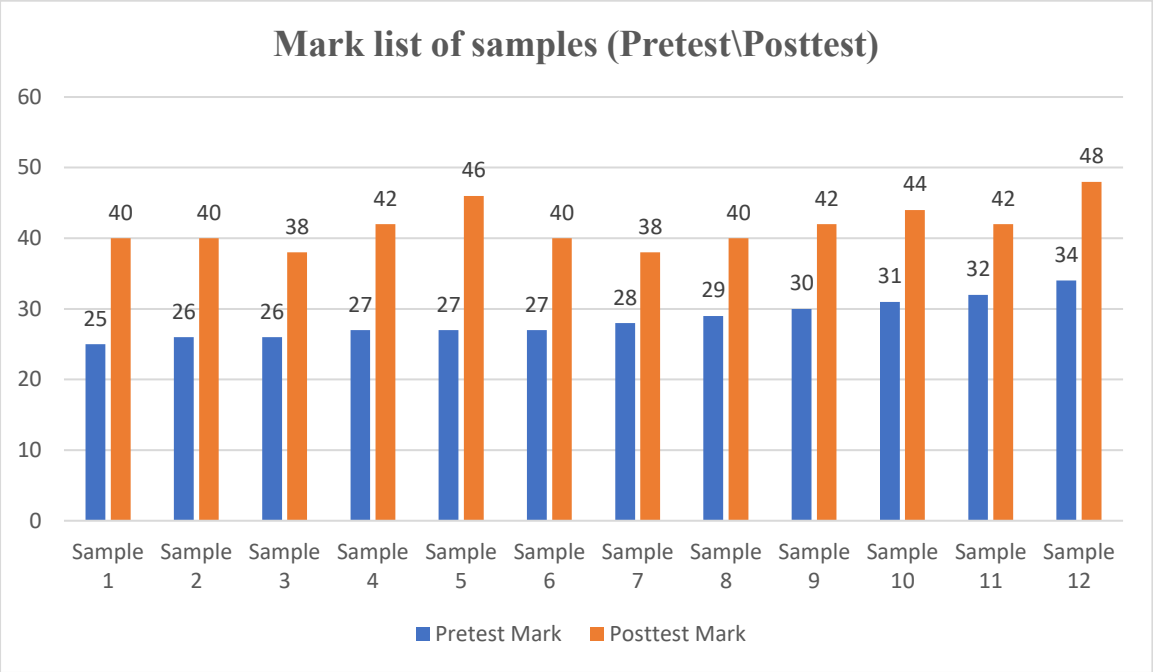
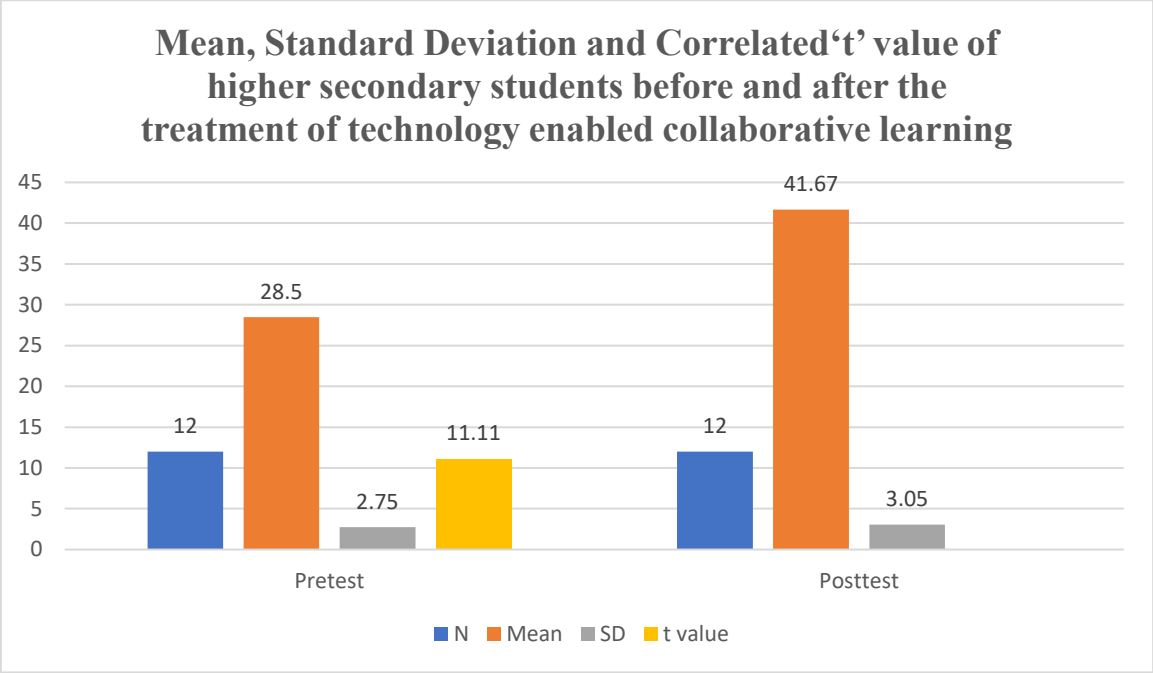


Table 2: Mean, Standard Deviation and Correlated 't' value of higher secondary students before and after the treatment of technology enabled collaborative learning

Test	N	Mean	SD	Correlated 't' value	Test of Significance
Pretest	**12**	**28.50**	**2.75**	**11.11***	Significant at 5%
Posttest	**12**	**41.67**	**3.05**		

From the table, it is clear that the correlated 't' value is 11.11 which is significant at 0.05 level. There exists significant difference between the pretest and posttest in the effectiveness of technology enabled collaborative learning among higher secondary students. The mean value of posttest is 41.67 and that of pretest is 28.5 which showed that technology enabled collaborative learning influenced the academic achievement among higher secondary students. So, technology enabled collaborative learning is more effective among higher secondary students in the academic achievement.

Fig 2: Mean, Standard Deviation and Correlated‘t’ value of higher secondary students before and after the treatment of technology enabled collaborative learning



Recommendations and Conclusion

From the results, it is more evident that technology enabled collaborative learning plays a significant role in the academic achievement in English among higher secondary students. Posttest marks were increased from pretest marks due to the influence of technology enabled collaborative learning. Posttest mean value is higher than pretest mean which showed that technology enabled collaborative learning is more effective in the academic achievement among higher secondary students.

The study recommends that the same study may be conducted with different subjects. The same study may be conducted with different levels of education from primary to higher education. To analyse the same, technology enabled various learning methods may be conducted. This study may be conducted to other educational institutions to enhance the learning and academic achievement among students at various levels.

Conflict of Interest: The corresponding author confirms that there are no conflicts of interest to disclose.

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