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EFFECTIVENESS OF SMART BOARDS IN ENHANCING CLASSROOM LEARNING AMONG COLLEGE STUDENTS IN ERODE CITY

***Dr. P. JANAKI, Associate Professor and Head, Department of Commerce (B&I), Vellalar College for Women (Autonomous), Erode, Tamil Nadu, India**

****Dr. R. SAMUNDEESWARI, Assistant Professor, PG Department of Commerce, Vellalar College for Women (Autonomous), Erode, TamilNadu, India.**

Abstract

This study examines the effectiveness of smart boards in enhancing classroom learning among college students in Erode City. Smart boards make teaching more interactive and engaging through text, images, videos, animations, and presentations. The study focuses on students' attention, understanding, participation, interest, and overall learning experience. The study uses a descriptive research approach, with primary data collected through a structured questionnaire. It also examines the benefits, challenges, awareness, and usage of smart boards. Overall, the study aims to determine whether smart boards can improve classroom engagement, concentration, participation, and understanding, while highlighting the importance of proper technical facilities and effective teacher usage.

Keywords: Classroom Learning, Educational Technology, Student Engagement, Interactive Learning, Teaching Effectiveness, Student Participation, Digital Learning.

INTRODUCTION

Education is important for personal, social, and national development. Today, traditional teaching methods are increasingly supported by technology-based tools such as Smart Boards.

A Smart Board is an interactive digital board that helps teachers use videos, images, diagrams, presentations, and activities to make learning more interesting and interactive.

Smart Boards can improve students' attention, participation, understanding, and retention. However, their effectiveness depends on factors such as teacher training, technical facilities, teaching methods, and students' digital skills.

Therefore, studying student engagement with Smart Board-based learning is important to understand its effectiveness in higher education.

STATEMENT OF THE PROBLEM

The use of smart boards has changed traditional classroom teaching by making learning more interactive and engaging. However, their actual impact on students' understanding, participation, retention, and academic performance is still uncertain.

Factors such as teachers' skills, students' technological adaptability, infrastructure, and frequency of use may affect their effectiveness. Students may also face challenges like technical problems and reduced personal interaction.

Therefore, this study aims to examine the effectiveness of smart boards in enhancing classroom learning among college students in Erode City.

SCOPE OF THE STUDY

The study has been undertaken to examine the effectiveness of smart boards in enhancing classroom learning among college students in Erode city. The present study focuses on analyzing the impact of smart board teaching on students' understanding, classroom participation, and academic performance. In addition, it aims to identify the key factors that make smart boards effective in enhancing classroom learning. It also examines the students' satisfaction with smart board usage and challenges faced by the students while learning with smart boards.

RESEARCH METHODOLOGY

A scientific approach to the research methodology is very much essential to evaluate the research problem systematically. The appropriate method will improve the validity of the findings. It is necessary for the research and is a systematic way of solving the research problem.

Area of the study: The study is conducted among college students located in Erode City.

Period of the study: The study has been made during the period from January 2026 to March 2026.

Sampling design: The convenient sampling technique was employed in their selection of the sample.

Sampling size: The number of items selected from the total population constitutes the sample size. A sample of 50 students was selected from colleges equipped with Smart Boards in Erode City for the present study.

Sources of data

The required data for the study has been collected from two sources.

- **Primary data:** The data were collected from students studying in colleges equipped with Smart Boards in Erode City through a structured questionnaire during January 2026.
- **Secondary data:** Besides the primary data, the secondary data were also collected from various newspapers, magazines and websites to make highlight on effectiveness of smart boards in enhancing classroom learning.

RESULTS AND DISCUSSION

Profile of the Respondents - Simple Percentage Analysis

The profile of the respondents has been examined in two aspects viz.., socio- economic profile of the respondents and respondents based on study related variables by employing simple percentage analysis. It is shown in Table 1.

Table 1

Age Group	**No. of Respondents**	**Percentage (%)**
Upto 20 years	**37**	**76**
21-25 years	**13**	**26**
Above 25 years	**-**	**-**
Total	**50**	**100**
Program of the study	**No. of Respondents**	**Percentage (%)**
Undergraduate (UG)	47	94
Post graduate (PG)	3	6
Total	**50**	**100**
Year of Study	**No. of Respondents**	**Percentage (%)**
I Year	15	30
II Year	5	10
III Year	26	52
Final Year	4	8
Total	**50**	**100**
Field of Study	**No. of Respondents**	**Percentage (%)**
Arts	7	14
Science	2	4
Commerce	35	70
Computer Science/IT	4	8
Management	2	4
Others	-	-
Total	**50**	**100**
Preferred Teaching Methods	**Number of the Respondent**	**Percentage (%)**
White board and marker	17	34
PPT	24	48
Smart white board	1	2
Combination of all	6	12
Others	2	4
Total	**50**	**100**
Perception of teaching	**No of the Respondents**	**Percentage (%)**

Yes	37	74
No	1	2
May be	11	22
Can't Say	1	2
Total	**50**	**100**
Extend of understanding	**No of the Respondents**	**Percentage (%)**
Increasing homework	7	14
Providing interactive and visual content	10	20
Limiting classroom discussion	33	66
Total	**50**	**100**
Frequency of usage	**No of the Respondents**	**Percentage (%)**
Daily	40	80
3-4 times week	6	12
occasionally	4	8
Total	**50**	**100**
Comfort level of technology usage	**No of the Rependents**	**Percentage(%)**
Yes	40	80
No	6	12
Somewhat	4	8
Total	**50**	**100**
Opinion on smart board teaching	**No of the Respondents**	**Percentage (%)**
Strongly agree	10	20
Agree	29	58
Disagree	1	2
Neutral	10	20
Total	**50**	**100**
Improving academic performance	**No of the Respondents**	**Percentage (%)**
Always	19	38
Often	13	26
Some times	17	34
Rerely	1	2
Total	**50**	**100**

Smart boards improve the quality of classroom learning	Number of the Respondents	Percentage (%)
Boring	3	6
Confusing	11	22
Interesting	36	72
Total	**50**	**100**

The profile of the respondents based on study related variables indicates that,

- The majority (48%) of the students prefer PPT-based teaching to be the most effective for understanding concepts.
- The majority (74%) of the respondents express a positive opinion towards the smart board method of teaching.
- The majority (66%) of the respondents expressed the opinion that the use of Smart Boards limits classroom discussion.
- The majority (80%) of the respondents reported that they use Smart Boards on a daily basis.
- The majority (80%) of respondents are comfortable with using smart board technology.
- The majority (58%) of respondents agree that smart boards are more interesting than traditional chalk-and-board teaching.
- The majority (34%) of the respondents opined that smart boards should always be encourage for interactive learning.
- The majority (38%) of the respondents opined that smart boards always improve academic performance.

Factors Influencing the Students' Learning Effectiveness with Smart Boards in the Classroom - Weighted Average Score ranking Analysis

The factors influencing the students' learning effectiveness with smart boards in the classroom is then analysed by using the Weighted Average Score Ranking Technique. The ranking of the factors influencing the students' learning effectiveness with smart boards in the classroom is presented in Table 2.

Factors Influencing the Students' Learning Effectiveness with Smart Boards in the Classroom - Weighted Average Score Ranking Analysis

Weighted score points (W)		8	7	6	5	4	3	2	1	Total score(W)	Weighted Average Score (XW)	Rank
Rank		I	II	III	IV	V	VI	VII	VIII			
Factors												
Increased student engagement and attention	X	7	4	9	6	5	8	5	6	228	6.3	IV
	WX	56	28	54	30	20	24	10	6			

Better understanding through visual and multimedia content	X	7	10	6	7	7	6	5	2	255	7.08	**I**
	WX	56	70	36	35	28	18	10	2			
Interactive learning (touch, quizzes activities)	X	5	6	6	4	5	4	10	10	206	5.72	**VIII**
	WX	40	48	36	20	20	12	20	10			
Improved retention and memory of concept	X	5	8	5	10	7	8	3	4	238	6.61	**II**
	WX	40	56	30	50	28	24	6	4			
Make complex topics easier to explain	X	6	7	8	4	5	4	8	8	225	6.25	**V**
	WX	48	49	48	20	20	16	16	8			
Encourages student participation	X	7	6	7	5	5	7	9	4	234	6.5	**III**
	WX	56	48	42	25	20	21	18	4			
Save time and improves lesson flow	X	7	2	6	8	11	6	3	7	221	6.13	**VI**
	WX	56	14	36	40	44	18	6	7			
Support different learning styles	**X**	6	7	6	3	6	6	7	9	213	5.19	**VII**
	WX	48	49	36	15	24	18	14	9			
TOTAL(X)		**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**			

(Note: X=Number of Respondents; W=Weighted Score Ranking Method

From the analysis, it is revealed that the better understanding through visual and multimedia content, improved retention and memory of concept, encourages student participation are the factors influencing the students' learning effectiveness with smart boards in the class room.

Satisfaction Level of the Students Towards the Use of Smart Boards in Classroom Learning

The satisfaction level of the students towards the use of smart boards in classroom learning has been analyzed with various factors by classifying as low, medium and high by employing chi-square test at 5 per cent level of significance.

It is identified that the majority (68%) of the students have medium level of satisfaction towards the use of smart boards in classroom learning.

Total satisfaction level of the Students

- 12 per cent of the students have low level of satisfaction towards the use of smart boards in classroom learning.

- 68 per cent of the students have medium level of satisfaction towards the use of smart boards in classroom learning.
- 12 per cent of the students have high level of satisfaction towards the use of smart boards in classroom learning.

Association Between Independent Variables and Satisfaction Level of the Students' Towards the Use of Smart Boards in Classroom Learning

To examine the association between satisfaction level and independent variables, the following null hypothesis has been framed. This hypothesis has been tested with chi-square test at 5% level of significance.

TABLE 3

Variable	Level of Significant	Degrees of freedom	Table value	Calculated Value	Result
Age	5%	2	5.991	0.359	Accepted
Program of Study	5%	2	5.991	0.668	Accepted
Year of Study	5%	6	12.592	6.930	Accepted
Field of Study	5%	6	12.592	6.930	Accepted

From the analysis, it is observed that there is no significant association between age, program of study, year of study, field of study and satisfaction level of the students towards the use of smart boards in classroom learning.

Problems Faced by the Students Towards the Use of Smart Boards in Classroom Learning - Weighted Average Score Ranking Analysis

For the purpose of the study, the problems faced by the students towards the use of smart boards in classroom learning have been identified and analysed in Table 4 by using weighted average score ranking method.

TABLE 4

PROBLEMS FACED BY THE STUDENTS TOWARDS THE USE OF SMART BOARDS IN CLASSROOM LEARNING – WEIGHTED AVERAGE SCORERANKING ANALYSIS

Weighted score points(W)		8	7	6	5	4	3	2	1	Tota lscor e(W)	Weighted Average Score (XW)	Rank
Rank		I	II	III	IV	V	VI	VII	VIII			
Factors												
Teaching issues like elabration and touch errors	X	5	6	3	5	7	9	7	8	176	4.8	VIII
	WX	40	42	18	25	28	27	14	8			
Internet software failures during class	X	5	5	5	8	5	6	8	7	246	6.83	IV
	WX	40	35	30	40	20	18	56	7			
Lack of proper teaching training	X	8	5	5	4	7	7	7	7	219	6.08	VI
	WX	64	35	30	20	28	21	14	7			
Student get distracted by visual and animation	X	10	10	7	5	6	5	5	7	268	7.44	II
	WX	80	70	42	25	24	15	10	7			
Class room management become difficult	X	6	5	5	2	5	7	10	10	194	5.03	VII
	WX	48	35	30	10	20	21	20	10			
Smart board used only as a projector	X	7	7	3	5	11	2	6	9	225	6.25	V
	WX	56	49	18	25	44	12	12	9			
Limited student participation	X	4	8	10	10	8	5	2	3	252	7	I
	WX	32	56	60	50	32	15	4	3			
Accessibility problems for some staff members	X	2	8	5	10	6	5	5	6	267	7.41	III
	WX	16	56	30	50	24	15	10	6			
TOTAL(X)		**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**			

From the analysis, it is clear that the majority of respondents are facing problems with the use of smart boards in classroom learning, including limited student participation, distraction caused by visuals and animations and accessibility challenges for some staff members.

CONCLUSION

The Smart Boards are useful in enhancing classroom learning among college students in Erode City. They make lessons more interesting, interactive, and easier to understand through visual presentations, videos, and digital content. Smart Boards also help teachers explain concepts more effectively and encourage student participation. However, interactive activities such as touch-based learning, quizzes, and group activities need to

be increased to make better use of Smart Board features. Based on the study, it is observed that a majority of the students prefer PPT-based teaching, especially when supported by smart board technology, as it improves visual learning and conceptual clarity. However, the study also highlights certain challenges, including technical issues faced by a large proportion of students and a moderate level of satisfaction with smart board usage. Hence, it is concluded that the overall effective use of Smart Boards can improve the quality of classroom learning and create a more engaging learning environment for college students.

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