INTERNATIONAL JOURNAL OF SOCIAL SCIENCES BULLETIN
ISSN: (E) 3007-1917 (P) 3007-1909
Volume 3, Issue 11, 2025

SMART CLASSROOM TEACHING–LEARNING: A COMPARATIVE QUALITATIVE INQUIRY FROM STUDENTS' PERSPECTIVE IN DISTRICT JHELUM

Asif Shahzad[*1], Muhammad Saeed[2]

*[*1]M.Phil. Scholar, School of Education Minhaj University Lahore*
[2]Professor, School of Education/ Associate Dean, Faculty of Social Sciences and Humanities Minhaj University Lahore

[*1]sunnehri7104@gmail.com, [2]muhammadsaeed.edu@mul.edu.pk

Corresponding Author: *
Asif Shahzad
DOI:https://doi.org/10.5281/zenodo.17579596

Received	Accepted	Published
16 September 2025	26 October 2025	11 November 2025

ABSTRACT

This qualitative study investigates the effectiveness of smart classroom teaching and learning from students' perspectives in both public and private secondary schools in district Jhelum. A total of eight schools, four public and four private, were purposively selected for data collection. The study utilized 16 focus group discussions involving 40 students, along with 32 classroom observations to examine real classroom practices closely. Data analysis followed Neuman's (2014) qualitative analytical framework, incorporating open coding, axial coding, and thematic development. The results reveal a notable contrast between the two types of schools: private schools have better infrastructure and more frequent use of smart classroom tools for interactive learning, while public schools experience constraints such as limited facilities and insufficient teacher training. The study concludes that teacher competency, strong institutional support, and well-established technological infrastructure are essential for the successful implementation of smart classrooms. This study further emphasizes the need to minimize the digital divide between public and private schools to ensure equal learning opportunities. It provides practical recommendations for enhancing teacher digital competency and maintaining functional smart classroom infrastructure. This research paper is based on the researcher's MPhil thesis submitted at Minhaj University Lahore.

Keywords: *Smart Classroom, ICT in Education, Student Engagement, Qualitative Study, Jhelum*

INTRODUCTION

Modern learning environments such as smart classrooms have revolutionized the teaching and learning of both teachers and learners in the world. Utilizing electronic tools, including tablets, LCDs, and the usage of computers with internet access can contribute to higher participation in learning, interest, and success of the students. Schools in Pakistan have begun to change slowly to a less traditional teaching approach involving the use of technology. The level of technology applied varies in case the school is a government one or a privately owned school. The financial resources and better technology infrastructure are usually higher in the case of the private schools. Low budgets, lack of facilities, and the lack of teacher training to use technology are some of the issues that are evident in government schools.

Smart classrooms do not just exist as mere content delivery systems, but rather as systems that assist in the interactive learning process. Studies show that learning environments that are enriched with technological applications can empower cognitive functions of students,

improve their problem-solving skills, and provide them with collaborative learning experiences (Khan et al., 2022; Rizvi & Qureshi, 2021). The resources of smart classes consist of projectors, interactive whiteboard, and web based materials. These tools allow learning in a variety of senses and meet different learning styles, development of critical thinking. Nevertheless, the success of smart classrooms is not limited to having such tools. It is also important to incorporate these methods into teaching, and it must be done successfully (Shah, 2020). Teacher capacity to establish meaningful learning experiences, monitoring of student progress, and positive feedback is critical in the attainment of educational objectives (Ali & Farooq, 2021).

There is a definite disparity between the public and private schools in their embrace of digital classroom technology in Pakistan. Computers, good internet access and digital materials are more likely to be available in the private schools. This results in more appropriate learning environment. Old-fashioned equipment, poor internet, and the lack of teacher training are frequent problems in public schools that influence student performance and contribute to the technological gap. This disparity restrains students in schools that lack funding. As a solution to such issues, the use and effects of technology in various schools need to be investigated (Shahzad, 2025).

This paper will discuss the use of smart classrooms in both public and private secondary schools in district Jhelum, Pakistan. It examines the opinions and experiences of students in technology-based classrooms, the issues encountered by the teachers, and how these elements influence student engagement and achievement. The research, putting the opinion of the students into the limelight, offers practical implications on policymaking and resource allocation so as to alleviate the issues of technological disparities (Shahzad, 2025).

In this research, both mixed-methods (classroom observations and focus group discussions) are utilized. The objective is to have an exhaustive view of the use of technology in different schools. The frequency and efficacy of smart classrooms in use are observed in the classroom. The discussions of focus groups are used to obtain the opinions, attitudes, and struggles that the students have to deal with when using digital resources. This will be a sure way of getting the findings to represent a combination of what is practiced and what really happens to the students in both the public and the private schools. It allows making evidence-based suggestions on how to improve the use of smart classrooms.

The study is valuable as it may assist school leaders and policymakers to learn about the actual advantages and drawbacks of smart classrooms in high schools. It reveals the as it is state of the digital learning, reveals the areas to improve, and proposes the ways to improve student learning. The comparison of public and private schools demonstrates that the use of equal chances in terms of technology and teacher training can lead to the success of smart classes (Khan et al., 2022). Nevertheless, infrastructure, teaching, and social challenges are also necessary in order to use smart classrooms successfully in Pakistan. The research is important to the study of educational technology in Pakistan because it will provide evidence on the utilization of smart classrooms in both public and private schools. The results will inform subsequent measures to enhance access, teaching, and Digital equity among students of secondary schools in Jhelum (Raza et al., 2025; Rizvi & Qureshi, 2021).

Research Objectives

1. To compare the availability and utilization of smart classroom resources in public and private secondary schools of district Jhelum.
2. To explore students' experiences, engagement, and attitudes toward smart classroom teaching–learning practices.
3. To identify the major challenges faced by schools and teachers in implementing smart classroom practices.

Research Questions

1. How does the availability and use of smart classroom tools differ between public and private secondary schools in district Jhelum?
2. How do students perceive the effectiveness of smart classroom teaching and learning?

3. What challenges are encountered by schools and teachers in implementing smart classroom practices?

Significance of the Study

This study of smart classrooms in district Jhelum is important for improving education in secondary schools. By comparing public and private schools, the research highlights differences in access, use, and effectiveness of smart classroom tools, such as tablets, LCDs, and computers with internet access. The findings can be helpful to the policy makers, principals and other teachers in terms of allocation of resources, training of teachers and integration of technology. Knowledge on the perception of students regarding smart classrooms can be used in enhancing engagement, motivation, and performance. The study is also a way to bridge the gap between the private and the public schools which is conducive to equal access to new learning. In general, it offers useful tips on the promotion of teaching through smart classroom technology.

Literature Review

The smart classrooms improve the teaching and learning process through the use of digital technology that includes LCDs, projectors, tablets, and internet-enabled computers to facilitate student centered learning. Studies indicate that students who learn with the guidance of teachers who incorporate technology into the learning process learn to solve problems better, become more active learners, and stay motivated during the learning process (Khan et al., 2022). Multimedia tools enable the students to visualize complicated concepts, which increases clarity and retention. Nevertheless, the effectiveness of the implementation of smart classrooms heavily relies on the digital competence of teachers and their capacity to create substantial learning tasks. Educators should be in a position to control technology, give employees feedback at the appropriate moment, and encourage teamwork (Ali & Farooq, 2021). When teachers are poorly trained, the use of technology will become less, and the traditional mode of teaching will prevail, which will limit the use of smart classrooms.

Although there have been some attempts to incorporate the ICT in Pakistani schools, there still exist noticeable differences between the public and the private schools. The most common advantage of the private schools is that they have better funding, superior facilities, and constant surveillance on the use of technology. Nonetheless, such threats as old outdated equipment, lack of reliable Internet connection, and inadequate teacher education pose a significant threat to public schools (Rizvi & Qureshi, 2021; Shah, 2020). These disparities have a direct impact on the student learning outcomes and result in a broader digital divide.

In that frame, the present study can make a contribution as it will compare the real application and influence of smart classrooms in the public and private secondary schools in the district of Jhelum. It expands the current literature by concentrating on the perceptions, experiences and the engagement of students, which justifies the necessity of equal access to technology-based learning environments (Shahzad, 2025).

Research Design and Methodology

This study employed a qualitative comparative design to examine the differences in smart classroom practices between public and private secondary schools in Jhelum. Eight schools four public and four private were chosen to show different settings. Forty male students from grades IX and X who had used smart classrooms took part. Data was collected using a classroom observation checklist and a focus group discussion guide. Both tools were reviewed by two experts and refined following a pilot test in another school. There were thirty-two classroom observations and sixteen focus group discussions. The data was written out word for word and analyzed using Neuman's (2014) three-step coding process: open coding, axial coding, and theme generation, to find similarities and differences between the two types of schools. It has a population of 98 public and 91 private boys secondary schools in district Jhelum, which have a total of 13, 204 and 7, 240 public and private students.

Table 1
Population of Boys Secondary Schools in District Jhelum (Public & Private)

Sr. No.	Tehsils	No. of Schools		Students	
		Public	Private	Public	Private
1.	Jhelum	34	35	4621	2320
2.	Sohawa	22	13	2717	1560
3.	Pind Dadan Khan	23	29	3390	1790
4.	Dina	19	14	2476	1570
	Total	**98**	**91**	**13204**	**7240**

Public source: https://sis.punjab.gov.pk
Private source: https://pepris.punjab.gov.pk

Sample Size and Sampling Technique

Four public and four private secondary schools that were reported to have smart classroom facilities or not were sampled using a purposive sampling method. The participants of the study were forty IX and X male students who had previously attended smart classroom sessions. The selection of these students followed a purposive selection method in understanding that the participants had a relevant experience with the teaching learning environment that was applied in the studies.

Participants were purposively selected in both the public and the private schools just to make sure that students were exposed to the use of technology in the classroom. Two primary instruments were employed in the study: observations in the classroom and the focus group discussion. The frequent use of technology was monitored and the quality of use of technology, but group discussions expressed student opinions, challenges and recommendations regarding the use of these resources.

The data analysis consisted of finding themes, and these aided in highlighting the main patterns and differences between a public and a private school. This approach gave a comprehensive insight on the use of smart classrooms and what is effective, what must be done better, and what the challenges are. The outcomes will be used to develop feasible methods of enhancing instruction and ensuring that every learner can access smart classroom tools. Instrument Research validation denotes a research process involving conducting research on measurement instruments utilized within the study (Badran, 2016).

Validation of Research Instruments

The classroom observation checklist and the focus group discussion (FGD) guide were examined for content validity by three senior experts in educational research. A pilot test was conducted in a government school outside the final sample to assess clarity. Based on feedback from the experts and pilot test, minor revisions were made to the wording and sequence of items to ensure clarity and suitability for secondary school students.

Data Analysis and Results

This paper reviewed the application of the smart classrooms in both the public and private secondary schools in the district Jhelum on the interaction of the students, their experiences, and the problems they face with technology in the learning processes. Information was obtained through classroom observations and focus group discussions and provided both practical and personal information about the workings of smart classrooms. This analysis identifies the differences between the public and the private schools, indicating what is doing well, what is not doing so well, and where ameliorations can be improved.

- **Confidence and Independent Use:** Students had higher confidence ratings in digital devices independency in the private schools and a big number of the students in the public school showed reluctance because of lack of hands-on experience.
- **Teacher Technical Troubleshooting:** Basic technical troubles were more often resolved by teachers in the private schools but in the public schools the teachers tended to seek

the help of an administration or outside assistance.

- **Attendance and Classroom Behavior:** In the case of private school, technology-supported lessons were accompanied with a higher level of punctuality and classroom behavior since students felt that the technology-based lessons were more interesting and rewarding to them.

Classroom Observations

It was found when a study was conducted in eight secondary schools of which four were public schools and four were private schools that there was a notable variance in the manner in which smart classroom resources were availed and used. The working LCDs, computers and the internet were common in the private schools. These tools were used in the teaching of the lesson as teachers used multimedia, online tools, and interactive lessons to attract the attention of the students. During digital activities, students were attentive, posed questions and collaborated. Classroom activities were well timed and the teachers made good combinations between traditional instructions and smart solutions in the classroom.

Access to smart classroom tools was minimal in the field of public schools. There was a lot of malfunctioning of LCDs and computers or computers were to be shared by multiple classes. Internet was not very reliable and therefore teachers could not utilize the online resources to a large extent. This led to a low adoption of smart classrooms and most of the teaching practices were traditional. Other teachers tried to use technology, yet they did not have enough resources and training that hampered its effectiveness. There was a notable disparity between the public and the private schools as students were not as engaged and interactive learning was low.

Focus Group Discussions (FGDs)

Focus group discussions provided insight into how the students think and feel about smart classrooms. The students of the private schools claimed that they had tablet, computer, and LCD classes and it was more interesting and easy to learn. They preferred visual presentation and multimedia which assisted in describing difficult subjects. They further mentioned that collaborating in computerized tasks, such as group assignments and Web-based exams, enhanced teamwork and problem-solving. Most of them favored smart lesson classes as compared to the traditional classes citing that they were more motivated and engaged.

Some of the issues raised by public school students included small classes that allowed resistance to participate, inconsistent utilization of digital tools, and lack of smart classroom technology. They have observed the advantages of smart classrooms but they could not use fully because they lacked the resources and the support of teachers. In order to enhance learning, most students proposed more devices, internet and training of the teachers.

Comparative Analysis

The comparison of public and private schools showed great interferences in the use of smart classroom. The infrastructure of the private schools was usually good, teachers were trained, and in most cases it was using technology and this contributed to more student involvement and learners were better informed. The infrastructure and other issues encountered in public schools were a challenge, and therefore it was hard to make use of smart classrooms. Both school categories acknowledged the importance of smart classrooms, however, they were much more accessible and used in the private school, which influenced positively learning among students.

Key Themes Identified

Based on the analysis of observations and FGDs, a number of recurring themes were identified:

Availability and Accessibility of Resources: Public schools usually have a hard time with inadequate, communal, or even outdated equipment, whereas the smart classroom equipment is more easily available and useful in private schools.

Teacher Competency and Training: The level of experience with using digital tools was directly connected with the fact that teachers could use smart classrooms. Educators in the private schools were more competent and confident in regard to using technology in the lesson.

Student Engagement and Participation: The use of smart classroom tools in instruction enhanced student participation in the private schools. Interactive multimedia presentation, online activities and group projects were used as a motivating factor of participation. Lack of access reduced interaction and engagement at the public schools.

Challenges and Barriers: In the field of technical issues in the public schools, there were broken devices, ineffective internet connections, and lack of preparation of teachers. The difficulties with both the private schools were less, primarily related to minor technical problems.

Implication on Learning Outcomes: Students in the private schools felt that the smart classrooms positively affected their learning of concepts, memorizing knowledge and being motivated in general. The school students in the public schools, though targeting the potential benefits, were less affected by the lack of resources.

Student Recommendations on What Can be Improved on: The students pointed out that having more devices, working internet, and constant supervision by the teacher were required. Specifically, the students attending the public school proposed to apply the smart classrooms and technical support in a systematic way to improve learning.

Overall Findings

According to the data, smart classrooms are beneficial to teaching and learning provided the number of resources and trained instructors is sufficient. The researchers concluded that the efficient use of smart classroom tools results in the increased engagement of students, better comprehension, and motivation. However, the disparity between the public and private schools reveals that infrastructure, resources, as well as the teacher skills, are highly crucial. Smart classrooms are being successfully used in the private schools, but the education in the public schools requires more assistance to address the issues.

Implications of Results

These findings indicate that it is important to offer equal access to smart classroom materials to the public schools in order to decrease the disparity in education. The ability to succeed requires teacher training, equipment maintenance and a good internet connection. Learning and involvement can also be enhanced using student feedback to plan the lesson. The results show that smart classroom technology can best work alongside student-centered instruction, adequate resources and proper teaching strategies.

Conclusion

The paper finds that the positive use of smart classroom technology improves the motivation, engagement, and learning of students. The Jhelum schools did not have a convenient equipment, internet was not reliable and teachers did not have proper training in case of the public schools, and on the contrary, the private schools had more advanced facilities and trained teachers used digital tools more efficiently. In order to provide everyone with the same access to technology, schools must be provided with specific training of teachers, better infrastructure, and continuous technical assistance. Both the state and privately operated schools can contribute to improving learning and reducing the digital gap by enhancing the competencies of their teachers as well as ensuring the high credibility of the digital resources they utilize.

Recommendations

1. Conduct periodic in-service training to teachers about effective integration of smart classroom tools and digital pedagogy.
2. Spread particular finances to maintain, upgrade and technical support smart classroom devices in state schools.
3. Make sure that there is a stable internet connection and the classrooms have working digital devices in all the secondary classrooms.
4. Implement a feedback and monitoring mechanism that will collect the opinions of the students concerning smart classroom lessons in order to enhance the quality of teaching continuously.
5. Promote openness between public and private schools to exchange best practices and cheap online learning methods.

REFERENCES

Ali, S., & Farooq, R. (2021). *Impact of digital tools on teaching effectiveness in secondary education*. Pakistan Education Press.

Khan, T., Ahmed, N., & Malik, S. (2022). Smart classrooms and student engagement: Evidence from Pakistani schools. *Journal of Educational Technology, 18*(2), 45–60.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Pearson.

Raza, K., Imran, M., & Yousaf, S. (2025). Digital equity and student outcomes in developing countries: A systematic review. *International Journal of ICT in Education, 11*(1), 22–38.

Rizvi, H., & Qureshi, M. (2021). *Digital learning tools and academic performance in secondary schools*. National Institute of Education.

School Information System Punjab. (n.d.). *SIS data portal*. Retrieved April 2025, from https://sis.punjab.gov.pk

PEPRIS Punjab. (n.d.). *Private education data portal*. Retrieved April 2025, from https://pepris.punjab.gov.pk

Shah, A. (2020). *Pedagogical integration of ICT in classrooms: Challenges and strategies*. EduTech Publications.

Shahzad, A. (2025). *Use of smart classrooms in teaching–learning: A comparison of public and private secondary schools in District Jhelum* (Unpublished MPhil thesis). Minhaj University Lahore, Pakistan.