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Developing middle leaders of English and Science in the use of smart board technology

Aisha Shahzadi, Pakistan

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School context

Established in 2014, Lahore Grammar School, Sheikhpura has experienced rapid growth, currently accommodating over 800 students across two campuses. However, the technological infrastructure in the school is insufficient, with only a fraction of the computers in the computer lab operational. As a result, the majority of teachers still rely on traditional teaching methods. To address this challenge, my aim was to promote inclusivity and enhance the learning experience by integrating smart board technology and providing ongoing teacher training. By establishing a fully functional technology lab equipped with operational computers and interactive smart boards, I sought to empower teachers with comprehensive training in incorporating technology into their instructional practices. Additionally, I aspired to educate students on the effective utilisation of technology to augment their learning.

About the author

Aisha Shahzadi is an educator with more than 12 years of experience. She has been actively involved in teaching and leading various departments at Lahore Grammar School in Sheikhpura, Pakistan. Presently, she holds leadership positions in the English and Humanities departments, where she demonstrates her strong commitment to incorporating cutting-edge teaching methodologies.



Key learnings

This research aimed to train teachers to integrate smart boards into their classes.

- Strong and thorough planning was required to ensure the lesson plan was effective and utilised the resources. Some teachers faced a lot of technical difficulties. At least two teachers were needed in the lab to ensure the lesson was conducted smoothly.
- Parents wanted to know more about the smart board classrooms and our inclusivity practices.
- The administration must make certain changes, like having mandatory technology-integrated classes for English, Science and Social Studies.
- Other schools were interested in this research and wanted to collaborate on training.
- Teachers need ongoing training, support and motivation to make their lessons more attractive and student-centred, and to continue with best practices.

'I see that the smart board has many benefits for both me and the students. It allows me to present the information in a more visual and dynamic way, and to use various multimedia resources and tools. It also motivates the students to participate more actively and creatively in the learning process, and to develop their digital skills and confidence.'
Sana Mahmood, Grade 4 Science teacher

Action research rationale

In Sheikhpura, there is a significant gender disparity, resulting in limited or restricted access for girls to smartphones and technology due to parental disapproval or unwillingness. Conversely, among the boys who have access to these resources, there is a noticeable lack of appropriate use for educational purposes. Although technology has created new opportunities to expand and change classroom instruction and student learning outcomes, due to inadequate infrastructure and teacher training, integration is still restricted in our school.

The purpose of this study is to use a cascading training that aims to increase middle leaders' and teachers' capacity to integrate smart boards into Science and English for inclusive classes. Two department heads will be among the participants, and they will supervise teachers while they receive training. The intensive workshop's main topics will include formative tests, data-driven instructor feedback, and interactive media for students. Over the course of an academic year, focus groups, interviews, observations, and surveys on student accomplishment will be used to evaluate integration practices and outcomes with funding allotted for technology infrastructure.

Interactive smart board technology presents immense potential to transform classroom practices by promoting student engagement, critical thinking, and equitable access to digital resources. Targeted professional development for middle leaders represents a crucial step in building schools' capacity to leverage smart boards for 21st century teaching and learning.

Expected outcomes

It is expected that the training programmes in the use of smart boards will increase teachers' confidence and competence in incorporating technology to create more motivating, enriched learning experiences for all students. Observations should reveal greater interactivity, engagement, and inclusion in classrooms through smart boards. Learning outcomes and test scores are also

predicted to improve, compared to conventional instruction. The study aims to showcase the key role of teacher professional development in harnessing technology's potential for 21st century education across student demographics. It can provide a model for bridging digital divides in other developing schools through training and infrastructure.

Exploratory research questions

1. How confident am I in my ability to effectively use smart board technology in my teaching?
2. What are current levels of expertise in using smart board technology among teachers and middle leaders?
3. How do other educational institutions design and implement their training programmes for middle leaders and teachers in the integration of smart board technology, and what successes or challenges have they reported?

Methodology

The primary aim of this research is to explore the development of students of Lahore Grammar School through creating a smart lab installed with a smart board and computers for English and Science. The methodology integrates a qualitative method approach, including a focus group with teachers of English and Science, surveys, and a reflective journal. Each group will use the smart board as part of their lessons to improve inclusive classrooms and learning of their children. This will help us understand students' learning through formative assessment and feedback in real-time.

For my reflective journal, I will use a set of planned questions to write about what I have already experienced in using smart boards and what I need to learn to elevate my classroom teaching to the next level. Initially, I will write up my journal fortnightly to record how my teaching has helped students improve in English Language. I will also be observing how other English and Science teachers use smart boards in their class and how their students have improved, through surveys and the survey of our parent body.

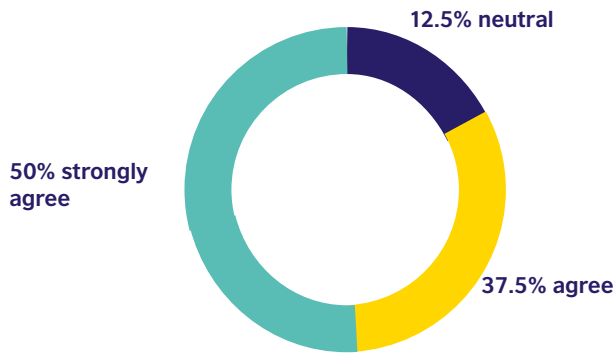


Figure 1: Smart boards enhance student engagement and participation (8 responses)

I will observe the general atmosphere in the classroom and note any unexpected events. I will keep my reflective journal updated throughout the project and add any points as required along with pictorial and video evidence. This journal will record teaching experiences, challenges faced, and methods used to motivate teachers and students.

Before the main research was started, a pilot test was conducted using the focus group questions and the survey. This was conducted in different schools. The survey helped me understand how other schools use the smart board for effective teaching.

Key findings from exploration

After trying to use the smart boards in inclusive classrooms, I realised that continuous upskilling of all stakeholders was necessary to fully harness their potential. A focus group of 12 participants with varying teaching experience revealed that some teachers were adept at incorporating technology, while others lacked exposure. However, the school principal was proficient and motivated and inspired teachers to explore smart board teaching. After the experience, teachers from other subjects expressed interest in incorporating technology into their lessons.

A global survey of 15 individuals indicated that educational institutions providing regular training for smart board integration reported high student motivation and learning outcomes, despite occasional distractions and technical issues. Analysing their digital journal, I recognised the need for further smart board training to enable English language teachers to train others. While training Science teachers proved challenging initially, there has been some progress. I expect smart board integration to cater to diverse learning needs and promote inclusivity, but I also know that we need extensive teacher training and motivation due to resistance to change.

The analysis highlighted varying levels of experience and exposure to technology integration, underscoring the necessity of targeted training initiatives. Leveraging the expertise of the school principal can facilitate knowledge-sharing and successful implementation.

Overall, participants expressed positive views on smart boards, citing enhanced engagement, interactive learning, multimedia integration, and immediate feedback. Weaknesses included technical troubleshooting, potential distractions and set-up time. The analysis emphasised addressing technical issues, providing training and support, and leveraging the benefits of smart boards in education.

Conclusions from the exploration

With a well-executed action plan, I aimed to achieve exceptional teaching outcomes for the cascading training. To assess the effectiveness of this training, we will closely observe teachers' lessons and conduct focus groups with teachers and surveys for students in grades 4–7, specifically evaluating their Science and English learning outcomes. I am also interested in learning from the experiences of others and strategies for incorporating technology into teaching.

The implementation of smart boards can effectively address diverse learning needs and foster inclusive classrooms, potentially resulting in improved student learning outcomes. However, maximising the benefits of smart boards will require extensive training. Considering the varying levels of teaching experience and limited technology integration, it is crucial to develop targeted training initiatives. The support and expertise of our principal will be instrumental in empowering teachers. In summary, this analysis underscores the significance of training, knowledge-sharing, and addressing any resistance to technology integration.

'I can see a huge difference in the learning outcomes of students. Their understanding has developed a lot as compared to their previous learning.'

**Lubna Shahzadi, Grade 7
English Language teacher**

**‘Student engagement has remarkably improved;
I can clearly find them excited, focused and involved.
They’re totally loving this unconventional teaching method.
As far as academic achievements are concerned, I’m hopeful.’
Moon Waris, Grade 6 English Language teacher**

Action plan

My main focus revolved around teacher training. Using prior knowledge and lots of research from different platforms I investigated ways to integrate technology into the classrooms efficiently. I also enrolled in a training programme which incorporated technology in the classroom but I had to leave it because it involved creating a website which was too advanced for my teachers to be of any use.

I needed to break the training segment into chunks so that it would be easier for the teachers to digest. Every Friday, teachers stay back in school for at least an hour and a half. I knew this would be the ideal time to host workshops. The first day, I shared how to operate the systems. To connect the systems, I put the same Gmail address in all the systems. For the second workshop, I designed a Power Point presentation through which I encouraged teachers to think outside the box using case studies of students who do not pay attention in conventional classrooms.

I also took the initiative to enrol students in an English Quiz Competition that had computer-based tests. We designed quizzes for the children so that they could practise and become familiar with using gadgets for their studies.

In the same workshop, I shared how teachers could help their children revise for the upcoming tests. As we had a few days before the assessments, one English teacher (grade 5) took the initiative and decided to show the movie version of the book they were reading in class. On checking the test result, we were pleased to note how the children had a comparatively better understanding of the characters and, during discussions, they could identify which parts of the book had been removed from the film.

I also designed a survey for parents and students. It was encouraging to see how children filled their own forms without the need for much explanation. Our parents were also cooperative and their children helped them fill in the forms.

I had also decided that I would join the Smartlab classrooms whenever possible so that we could work on an improvement plan. I also planned focus group questions for the administration and recorded their answers so that I could use the results in my article.

Action plan implementation

The implementation of the action plan coincided with the March assessments. Teacher focus group sessions and workshops had begun in December. After the teachers returned from the holidays, there were a number of festivities and election holidays that prevented us from doing anything in the Smartlab. This gave teachers ample time to prepare for the smart board lessons. Teachers were encouraged to have at least one revision lesson before the test. Even if they could not, they were encouraged to teach the lessons they would be assessing in the final term (May–June) so that students would have clear concepts. We would take pictures and also record random chunks of the lesson which would be shared with the administration for discussion.

Data collection procedure

I decided to continue with my digital journal so that I could continue recording my experiences and the challenges I came across. As we kept getting unexpected government holidays, I decided on a more proactive approach. After conducting the first smart board workshop session which also included the principal’s presence, I handed out a sample lesson planning format for teachers to use where they could pick a chapter they were about to teach and integrate it with technology. I created a WhatsApp focus group because meeting regularly had become a little difficult. I thought it a fitting platform for discussions and sharing evidence. After that, I designed surveys to be completed by students and parents. The students from grades 4–7 managed to attempt the surveys by themselves and some even helped their parents to fill it in.

I sat in the smart board classes and observed the challenges and successes while taking pictorial evidence. I shared my observations with the administration and we had two focus group sessions. Participants who were observed, along with the teachers and administration, gave their signed consent.

Please state the reason/s why you do or do not want to give your children too much exposure to technology? (17 responses)
Because it will help her in future.
Too much screen time causes problems and wastage of time are the main reasons behind this.
I don't want to give my child too much because it affects his mental health and eyesight.
To avoid negativity.
Because it affects their brain development and eye health.
Because of adult stuff.
Use in proper way.
I guess technology has more side effects than benefits for children.
It makes them dull and addicted. Short-temper issues, unwanted content exposure and bad health.

Figure 2: A survey question showing why parents are reluctant to give too much technology exposure

Key findings

- We need to communicate with parents regularly about the smart board classrooms and our inclusivity practices.
 - Strong and thorough planning is required to ensure that the lesson plan is effective and utilises the resources provided fully. Through observations, we noticed that the students who were not being asked the quiz questions became bored and distracted.
 - The administration will have to make certain permanent changes starting next year like having mandatory technology integrated classes for English, Science and Social Studies. This will be achieved by having meetings with the subject facilitators to follow up. The administration will have to prepare its own checklist of observation schedules. They will have to adjust timetables accordingly.
 - Teachers will need ongoing training, support and motivation to continue with the best practices.
- They will need to make continuous research in the best ways to make their lessons more attractive and student-centred.
- At least two teachers are required in the lab at the same time to ensure that the lesson is conducted smoothly. It becomes difficult to handle a class of 26–28 children in an interactive classroom with lots of activities.
 - Change is difficult for everybody. Some take a more hands-on approach while others continue to sit and watch. The cascading approach was meant for 12 people, of which eight took the initiative to use the Smartlab.
 - Parents would like to know more about the smart board classrooms because the majority are reluctant to give devices to their children.
 - Other schools who heard about this research wanted me to help their teachers. We collaborated in a training session very recently and they want me to continue. This school has 3000 students and 145 teachers across two campuses.

Figure 3: Science lecture on the digestive system after which students played games and created a model of the digestive system. The smile says it all...For once concepts in Science do not feel abstract.





Figure 4: Collaborating with other schools on student-centred learning and integrating technology in classrooms

Conclusion

It takes phenomenal effort to get people to take up challenges and despite the concept being so new, many of the teachers embraced it readily. Students were excited to be a part of this journey and they shared through their surveys that lessons were more fun compared to the conventional methods of teaching. It was a challenging ordeal in the class for teachers to manage the resources and the videos by themselves. Some of them faced a lot of technical difficulties as well due to which they were unable to have their lessons as planned. It is commendable to note how the teachers who were truly enthusiastic requested other teachers to let them take their lessons so that they could have a go at the smart board class with their children. Once teachers managed to have their lessons, they felt very confident. Some of them started making revision quizzes that the children could use to prepare for their tests. This is the first step to integrating technology in the classrooms. Some people are still very reluctant to integrate technology into their teaching and the administration will have to take a stronger stance to get teachers to take initiatives. Others have taken this as a challenge, and are competing with each other to see who has a more effective lesson.

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I would like to acknowledge the use of AI that helped me put my ideas in a more structured way onto paper and helped in designing focus group questions in its initial stages, which I later modified as needed.

**‘It’s a win-win situation for you and your students both...
on one end, you are learning new ways of engaging your students,
and on the other end, your students show interest in
learning through the use of technology,
which is absent in a traditional non-technology classroom.’
Naila Saad Khan, Mentor and School Principal**