

CHALLENGES IN INTEGRATING A SMART CLASSROOM TECHNOLOGY

by:

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In every aspect of our lives today, the existence of technology has been apparent. Through technology, we can manage our daily lives and share information with our friends, family, and others. It is one of the essential tools which play a functional role in harnessing tools and strategies to help us solve problems and make our lives easier and better. Indeed, it is unimaginable to experience life without technology.

With the advent of technological innovations and advancements, the field of education has no exceptions. Teachers integrate technology in classrooms in pursuit of an effective teaching-learning process. Technology helps schools to address educational disparities which may impede holistic development and growth of students. One of the potential solutions to narrow these gaps using technology is to implement digital smart classrooms.

Smart classroom is a type of classroom which leverages well-equipped technology with the use of internet connectivity. It elevates the teaching-learning process by providing teachers with more flexible experience and tools in teaching students, increasing learning engagement and facilitating a deeper understanding of the lessons. This educational system integrates various forms of multimedia to learning such as audio, video, images, graphics, animations along with the advanced educational technology tools like interactive whiteboards, projectors, tablets, laptops, educational software applications, etc. To maximize the use of these tools, these should be reliable connectivity to high-speed internet. Its potential helps teachers to deliver teaching in a less tedious way and offers students with more entertaining learning experiences. However, there are

several obstacles that can still be encountered which can impede the success of this educational breakthrough, and it is best to delve into them.

Since smart classrooms require a seamless internet connection, one of the barriers in integrating this technology is the infrastructure limitations. Infrastructures are considered as the 'backbone' of smart education because the entire success of implementing digital smart classrooms lies within this factor. Challenges such as deficient network infrastructure, overloaded servers, and insufficient technical support can result in a poor-quality learning experience. When students and teachers experience connectivity issues, their performance is at stake, falling short on the delivery of quality education. To address this issue, schools need to invest more in network infrastructure and implement load balancing techniques in upgrading servers to manage traffic and demand. Also, a more comprehensive training program for educators can help resolve issues regarding infrastructure.

Another challenge in setting up a smart classroom is the teacher's level of proficiency in operating it. Its success depends on the expertise of the teacher who facilitates learning in a smart classroom. Unfamiliarity in incorporating new technologies in teaching may result in stagnancy to utilize traditional teaching approaches, risking students in developing 21st century skills. To overcome this issue, schools can engage teachers in more comprehensive training programs for them to be familiarized with the education technologies. Depending on teachers' needs and proficiency levels, they can also customize training modules to support their adaptability in using technology. Choosing user-friendly digital learning platforms to reduce technical expertise issues would be a great help for teachers in delivering lessons. Of course, to achieve these goals, the conduct of regular assessments of teachers' digital proficiency should be done to identify areas for their improvement.

Privacy and security concerns are also considered to be a challenge that teachers should address when implementing smart classrooms. It is a must for a school to

prioritize the safety and security of students, teachers, and other staff in using new technologies for smart classrooms. Privacy and security issues are often generated from various virtual platforms which educators should be aware of. These issues include weak web protection frameworks which leave teacher and student data vulnerable to illegal access and direct breaches of hackers to online classrooms which disrupt classes and make learning spaces unsafe. To mitigate privacy and security risks, schools should implement strong data encryption protocols to protect sensitive information stored in networks. They should also enforce mechanisms such as multifactor authentication to avoid unauthorized access to virtual platforms. Students and other staff, together with the students, should undergo a comprehensive training program on cybersecurity to raise awareness of cyber threats and best practices for online security.

Also, the presence of financial constraints is a deterrent factor in the success of smart classrooms for it requires a crucial monetary investment. Funding has its say when it comes to putting up a successful smart classroom. Implementing smart classrooms can be reasonably expensive at first, but the long-term and deep-rooted benefits of this endeavor are rewarding. To experience the quality of this technology to its full extent, schools should prioritize investments in key areas where technology can result in further impactful learning outcomes. Budget allocations for the integration of technology should be planned with an aim for long-term implications which can benefit students and teachers. Tapping stakeholders in the community can also be a great option to generate funds to accommodate procurement of technological tools and of ongoing costs on their maintenance and upgrades.

Moreover, implementing smart classroom technology cannot be achieved in an instant, so it requires time and effort. It should undergo careful planning over the necessary timeframe towards an effective implementation. School staff and stakeholders should go hand in hand with genuine efforts to implement this technology successfully.

If we are seeking a smart classroom where learning experiences are meaningful and engaging, adequate time and persistent efforts should be invested.

To wrap things up, potential challenges in the implementation of smart classrooms such as infrastructure readiness, teacher proficiency, privacy and security concerns, financial investment, and time and effort should be acknowledged and addressed accordingly. Overcoming these challenges can help us usher in an era where technology flourishes, not obstructs. With careful consideration of strategic planning, awareness of issues and challenges, and quest for ground-breaking solutions, smart classrooms can be an effective avenue towards the achievement of our very goal, that is, to educate modern-day learners.

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