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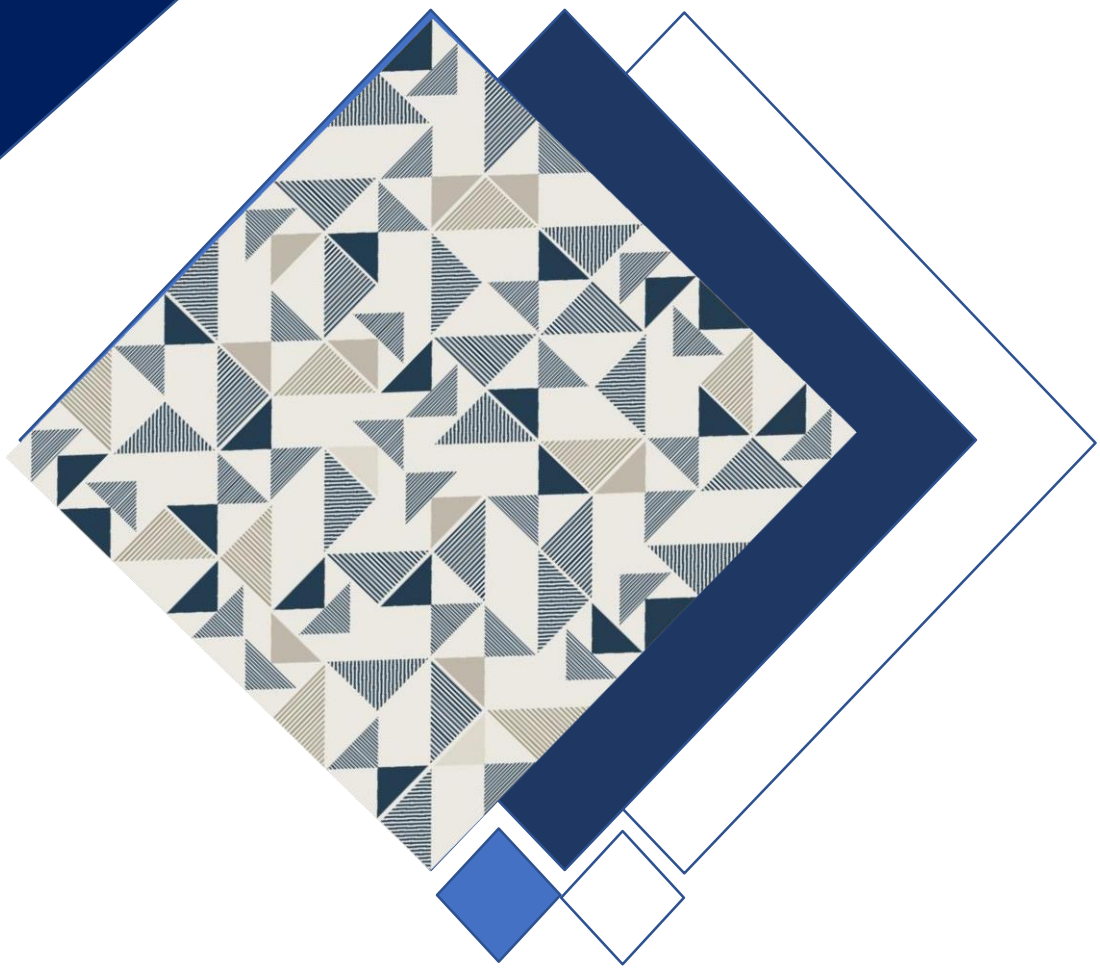

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Case Study

Technology Integrated Learning – A Case Study

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Abstract

The study investigated how the teachers self-regulated their learning and trained themselves to integrate technology into their regular classroom scenario. The teachers then conducted peer learning and trained their colleagues in technology-integrated education.

A research-based approach was first conducted to understand technology integration into our classrooms. A team of five teachers were created. Qualitative data was gathered from educators, followed by interviews on their use of technology in education. The next step was to extend the research to online data. A collaborative, constructive, authentic and goal-directed approach was adopted to conduct the research. Various online classroom observations were conducted, evaluating the materials and drafting conclusions. Once the teachers trained themselves using technology, they extended their learning to their peers.

The data that we found most helpful was from the Florida Center for Instructional Technology, Edutopia, Technology Integrated Matrix, insights from the Drexel University of Education, National Center for Education Statistics.

Introduction

Professional development in education refers to a wide-ranging application of advanced professional learning, specialised training, or formal education to assist teachers, educators, and administrators in strengthening their skills, knowledge, and effectiveness.

The covid-19 pandemic brought about a major shift from external expert guidance to self-based research and technology. While the technological resources at many schools are extensive, few teachers can effectively integrate these resources in their daily lessons in a meaningful way.

Technology provides instant access to information, so it is vital for training and self-regulated learning in the classroom. Smartphones, computers, and tablets are already an omnipresent element of everyday life for students and teachers alike. It's only natural that technological devices in the classroom are explored to create meaningful learning experiences for students of all ages.

Integration of technology in education refers to technology to enhance the student learning experience. Utilising different types of technology in the classroom, including a virtual classroom, creates learners who are actively engaged with learning objectives. The implementation of technology also creates pathways for differentiated instruction to meet the unique needs of students as individual learners within a broader classroom climate. While the technology at many schools is plentiful, few teachers can effectively integrate technology in their daily lessons in a meaningful way, equipping students with the21st century skills necessary for success in later education and society.

A research-based approach was used in integrating technology within the classrooms. This study focused on exploring different methods of integrating technology and addressing 21st-century skills in elementary classrooms. And also encourage collaborative, reciprocal and cooperative learning among students, design learning activities with technology for high engagement and active learning; we divided technology-supported pedagogy into three categories: replacement, which involves technology replacing traditional instruction; amplification, which involves technology being used to efficiently complete tasks; and transformation, which involves technology used to transform students' learning routines to contribute

to their cognitive development. Qualitative data was gathered from teachers, followed by interviews on their use of technology in education. How technology was used in the classroom was examined, and the challenges and benefits were identified.

Gathering our thoughts

Internet improves the quality of education in numerous ways. It opens doorways to the abundance of information, knowledge, and opportunities in learning. Each team was assigned a certain content to research during our peer discussion. The teams worked collaboratively with each other to conclude. It was further supported with the information collected through articles, e-journals, e-books, and blogs. Internet is a powerful instrument that served as a useful source for our research work and learning.

The internet has become a major tool for effective teaching and learning. Internet was mostly relied on during our teacher's training and inductions. The internet supported the interactive sessions, which enabled our teachers to refine their professional skills. Tasks were assigned to the teachers who helped them explore more opportunities and discover new ways to use the internet in their teaching.

The internet holds a prominent place in enhancing the teacher's profession. Online workshops, in-service meetings, and peer meetings were conducted to discuss and brainstorm the various challenges during our research. YouTube, Google search engine, Google Scholar, scientific data basis and journals, libraries, conferences, expert talks, story weaver, educational websites were used during research.

Data collection is a systematic gathering and analysing of specific information to propose solutions to the relevant question and evaluate the results. Data collection used by the team involved telephonic conversations, use of Google Form survey, semi-structured telephonic interviews, and participant observation. Oral histories were collected to gauge and evaluate prior methods used by teachers in the use of technology integration.

Reference material such as the learning styles of teachers, pedagogy of effective teaching, integration of technology in the 21stcentury, Collaborative teaching skills were some of the methodologies used to create our research design.

Desktop Research

Knowledge transfer is the process of imparting knowledge from one person to another. It seeks to organise, create, capture, and distribute the knowledge of the most experts in the fields and ensure its availability for their peers. Peer-to-peer training is an excellent medium to pass skills from knowledgeable and experienced team members to others. We used a Prezi presentation to share all the research contents with the teachers. The presentation contained a detailed flow of the topic. The content revolved around how technology integrated teaching using the various teaching aids like the Whiteboard, Class Notebooks, Online Games like Kahoot, Scratch programming, and Surveys for feedback. Each faculty member was allowed to explore and implement these tools during the training process.

Peer training was conducted through video conferencing using Microsoft teams. Team members were divided into groups using breakout rooms. Each team was given a specific topic. One member of the research team facilitated constructing the research design. Teachers were then divided into groups to conduct desktop research. Desk research is a term that is used loosely, and it generally refers to the collection of secondary data or that which has already been collected. The main purpose of desk research is to check whether research regarding a topic or question already exists, formulate a research question more precisely, and identify promising data collection, visualisation, and synthesis methods.

Some of the common concerns experienced by teachers were related to the effectiveness of technology in meeting the learning outcomes. Teachers found it challenging to cater to various learning styles, implement a range of activities, and reach out to students with certain disabilities (ADHD, Learning disability, Autism). Peer learning was an effective method to support teachers in bridging various learning gaps. Teachers could reflect on and discuss their past experiences, which were ineffective in reaching their desired goals.

Video Conferencing

Video conferencing was a significant help during this pandemic. Video conferencing has completely transformed how we communicate with each other safely and from a distance. We knew the advantages, but since being faced with a global pandemic, we've had no other choice than to get closer virtually. Teachers were able to open their computers and get started in a matter of seconds. There is no need to drive miles or fight through traffic and waste valuable time.

While exploring content for peer training, the teachers used several applications such as Prezi for presentation, PowerPoint, and Microsoft tools like forms to conduct surveys, which enabled us to gauge the problems experienced by the teachers. We were able to brainstorm solutions to enhance productivity effectively.

A training was organised and conducted by Microsoft Educator Center, which helped teachers collaborate and enhance their digital skills. Courses such as digital literacy, the inclusive educator, developing a digitally literate pedagogy, and developing a digitally literate curriculum were covered to assist teachers in accomplishing their training outcomes. This, in turn, was effective in equipping teachers with the necessary skill set for effective teaching and contributed to professional development.

Instructional tools

Collaborative platforms like MS teams, Zoom, Google meet were essential in connecting teachers throughout India. Teachers were able to cater to various learning styles (visual, auditory, kinesthetic, read and write learner), enabling them to apply creative methods to appeal to students. Students were able to stay more engaged during these classes and implement similar methods during assignments and projects.

Conclusion

The successful implementation of this research was effective in reaching the various outcomes:

- Visualisation: Teachers reported being able to easily create mental representations of various concepts, which enabled them to develop better lesson plans for students. They also conveyed their ideas among peers, which encouraged collaboration and innovation in teaching methods.
- Creativity: Teachers using devices and media have the opportunity to build virtual models of their devices, programs, robots, and other gadgets like scratch programming in computers. Teachers are becoming more creative with AI and robotics as they are now part of the curriculum.
- Critical thinking: Teachers were better able to grasp complex concepts when key information and tasks are explained using various modalities like verbal, visual, graphical, and symbolic and instructional formats like video lectures, graphic displays, audio files, and simulations.
- Social Responsibility: Responsibility to model and teach student expectations of technology use. Responsibility to keep data/information safe from hackers. Responsibility not to falsify our identity in any way.
- Better interaction: This training expanded the possibilities for cross-culture learning, sharing various ideas and viewpoints through collaborative work. Apps like skype, google meets, and MS teams have effectively supported teachers connected globally.
- Efficiency: The research posed relevant questions for teachers to enhance the effectiveness of teaching practices. Through the course of this research and peer training, teachers reported an improvement in the speed with which learning outcomes were met
- Reliable support: Technology offers us reliable methods to implement strategies for learning and aid professional development. Various apps have become a necessity among schools due to the online learning model.
- Self-sufficiency: Teachers can now cater to multiple challenges posed through technology. Self-paced learning is growing in importance, which offers teachers plenty of resources and flexibility to reach their desired goals. This indeed marks a significant transition in the pedagogy of teaching practices.

Reflection

Findings from the study demonstrate that a community of practice can promote technology integration. This article will be of particular value to administrators interested in creating a

community of technology integration practices within their schools. However, this article is unique because it presents a professional development program that considers the needs of teachers keen on learning to integrate technology on their own. This would serve as a good starting point for any education practitioner interested in understanding how a professional development program can support teachers as they integrate technology into instruction for students.

Reference

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