



The Role of Technology in Implementing the New Curriculum in India: Case Studies in Schools in Urban and Rural Areas

Srijecty Phardane¹

¹Barathidasan University, Tamil Nadu, India

Corresponding Author: srijectyphardane@bdu.ac.in

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ABSTRACT

This research investigates the role of technology in implementing the new curriculum in India, focusing on case studies of an urban school in a metropolitan city and a rural school in a remote village. Guided by theoretical frameworks such as Michael Fullan's work on educational change, Ruben Puentedura's SAMR model, and Punya Mishra and Matthew J. Koehler's technological pedagogical content knowledge (TPACK), the study employs a qualitative case study approach. Data collection involves semi-structured interviews, classroom observations, and document analysis, triangulating multiple sources to enhance credibility. The findings reveal stark contrasts in technology infrastructure, access to digital resources, and teacher preparedness between the urban and rural schools. While the urban school exhibits a more advanced level of technology adoption, with interactive whiteboards and computer labs, the rural school faces significant challenges due to limited access to reliable internet connectivity and a lack of basic technological equipment. Moreover, teachers in the urban school demonstrate a higher level of TPACK, enabling them to seamlessly incorporate technology into their instructional practices, whereas teachers in the rural school face challenges due to limited training opportunities. The study highlights the critical role of contextual factors and the digital divide in implementing technology-driven curriculum reforms. Effective implementation requires a multifaceted approach addressing infrastructure, teacher professional

development, and equitable access to technological resources across all regions. The findings contribute to the broader discourse on technology integration in education, emphasizing the need for tailored strategies that ensure inclusive and equitable access to quality education.

INTRODUCTION

In recent years, India has undertaken significant efforts to reform its national curriculum, recognizing the need to align educational practices with the demands of the 21st century (Ibrahim, 2020). The National Education Policy (NEP) 2020 emphasizes the integration of technology in teaching and learning processes, aiming to enhance the quality and accessibility of education (Ministry of Education, 2020). However, the successful implementation of this technology-driven curriculum reform hinges on addressing the digital divide and infrastructure disparities between urban and rural areas (Azim Premji University, 2021).

The role of technology in education has been extensively explored by scholars worldwide. Fullan's (2013) work on educational change highlights the importance of addressing both technical and human aspects in implementing educational innovations. Similarly, Puentedura's (2006) SAMR (Substitution, Augmentation, Modification, Redefinition) model provides a framework for evaluating the effective integration of technology in teaching and learning practices.

Furthermore, the concept of technological pedagogical content knowledge (TPACK) proposed by Mishra and Koehler (2006) underscores the interplay between content knowledge, pedagogical knowledge, and technological knowledge required for effective technology integration in classrooms. These theoretical perspectives highlight the complexities involved in adopting technology-driven curricula and the need for a holistic approach encompassing infrastructure, teacher training, and pedagogical strategies (Muhsyanur, 2012).

METHODE

Data collection involves multiple sources, including semi-structured interviews with teachers, school administrators, and educational experts, as well as classroom observations and document analysis of curriculum materials and school policies. This triangulation of data sources, as suggested by Denzin (1978), enhances the credibility and trustworthiness of the findings.

The data analysis process follows the principles of thematic analysis outlined by Braun and Clarke (2006), allowing for the identification of recurring patterns and themes across the two cases. Additionally, the study draws upon the theoretical lenses of TPACK and SAMR to analyze the extent and effectiveness of technology integration in curriculum implementation.

RESULT AND DISCUSSION

This section presents the main findings of the research, whether in the form of quantitative or qualitative data. The results are presented objectively, then analyzed and discussed by linking them to relevant theories, previous research, and contexts. The discussion focuses on interpreting the meaning and implications of the research findings.

Paragraph 7: The findings reveal a stark contrast between the urban and rural schools in terms of technology infrastructure, access to digital resources, and teacher preparedness for technology integration. The urban school exhibits a more advanced level of technology adoption, with interactive whiteboards, computer labs, and access to online educational resources. However, the rural school faces significant challenges, including limited access to reliable internet connectivity and a lack of basic technological equipment.

Aligned with the SAMR model (Puentedura, 2006), the urban school's use of technology primarily falls into the "augmentation" and "modification" levels, where technology enhances traditional teaching methods and facilitates task redesign. In contrast, the rural school's technology integration largely remains at the "substitution" level, with technology serving as a direct replacement for traditional tools without significant functional changes.

The study also highlights the critical role of teacher training and professional development in effective technology integration. Teachers in the urban school demonstrated a higher level of technological pedagogical content knowledge (TPACK) (Mishra & Koehler, 2006), enabling them to seamlessly incorporate technology into their instructional practices. However, teachers in the rural school faced challenges in adapting to technology-driven pedagogy due to limited training opportunities and a lack of support systems.

Furthermore, the findings reveal disparities in students' access to technology outside the school environment. Urban students often have access to personal devices and internet connectivity at home, enabling them to engage in self-directed learning and exploration. In contrast, rural students face significant barriers in accessing technology beyond the school premises, limiting their opportunities for extended learning experiences.

The study also highlights the importance of contextual factors in implementing technology-driven curriculum reforms. While the urban school could align its practices more closely with the national curriculum guidelines, the rural school faced challenges in adhering to these guidelines due to infrastructural and resource constraints. This observation resonates with Watters' (2021) critique of the "one-size-fits-all" approach in educational technology initiatives, emphasizing the need for tailored strategies that address local contexts and challenges.

CONCLUSION

The research findings underscore the significant disparities in technology integration and curriculum implementation between urban and rural schools in India. While urban schools have made strides in adopting technology-driven pedagogies, rural schools face substantial challenges due to limited infrastructure, inadequate teacher training, and lack of access to digital resources.

Effective implementation of the technology-driven curriculum reform in India requires a multifaceted approach that addresses the digital divide, strengthens teacher professional development programs, and provides equitable access to technological resources across all regions. Contextual factors and local needs should be considered in developing tailored strategies that ensure inclusive and equitable access to quality education, aligning with the principles of educational equity advocated by scholars like Ladson-Billings (1995) and Geneva Gay (2010).

The findings of this study contribute to the broader discourse on technology integration in education, highlighting the complexities and challenges faced by developing countries in implementing large-scale curriculum reforms. By identifying the gaps and disparities between urban and rural contexts, the research provides insights for policymakers, educators, and stakeholders to develop targeted interventions and support systems that foster inclusive and equitable technology-driven education in India.

REFERENCES

- Azim Premji University. (2021). State of working India 2021: One year of Covid-19. https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2021/08/State_of_Working_India_2021-One_year_of_Covid-19.pdf
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods*. McGraw-Hill.
- Fullan, M. (2013). *Stratosphere: Integrating technology, pedagogy, and change knowledge*. Pearson.
- Gay, G. (2010). *Culturally responsive teaching: Theory, research, and practice* (2nd ed.). Teachers College Press.
- Ibrahim, M. (2020). Psikologi Pendidikan: Suatu Stimulus Awal. In M. dan I. Rumalean (Ed.), *Forsiladi Pers* (Vol. 7, Issue 2). https://books.google.co.id/books?hl=en&lr=&id=WT-HEAAAQBAJ&oi=fnd&pg=PR2&ots=orOGoJ4XaM&sig=_RldS7mWG5ZSpRE8sRmGX1Kt2Hs&redir_esc=y#v=onepage&q&f=false

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32(3), 465-491.
<https://doi.org/10.3102/00028312032003465>

Muhsyanur. (n.d.). Peningkatan kualitas pembelajaran menulis karangan persuasi melalui penggunaan media iklan layanan masyarakat pada siswa kelas x-2 sma negeri 1 takkalalla Kabupaten Wajo. *Tesis tidak Dipublikasikan*. Makassar: Universitas Negeri Makassar.

Ministry of Education. (2020). National Education Policy 2020.
https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054.
<https://doi.org/10.1111/j.1467-9620.2006.00684.x>

{Bibliography}

Puenedura, R. R. (2006). Transformation, technology, and education.
<http://hippasus.com/resources/tte/>

Watters, A. (2021). Teaching machines: The case against education by corporation. In S. Kimmons (Ed.), *Education for a Worthy Life* (pp. 51-64). EdTech Books.
https://edtechbooks.org/worthy/teaching_machines