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DIGITAL LEARNING READINESS AMONG SECONDARY SCHOOL TEACHERS IN MAHARASHTRA: OPPORTUNITIES AND CHALLENGES FOR ICT INTEGRATION

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ABSTRACT

This paper examines the readiness of secondary school teachers in Maharashtra to adopt Information and Communication Technology (ICT) in classroom instruction during 2018. Digital learning readiness refers to the combination of skills, attitudes, infrastructure access, and institutional support that enables a teacher to use technology meaningfully for teaching. The paper draws on theoretical frameworks such as the Technological Pedagogical Content Knowledge (TPACK) model to understand how teachers balance subject knowledge, teaching methods, and technology use. It explores opportunities created by state and national digital education initiatives, alongside persistent challenges such as infrastructure gaps, teacher training deficits, and resistance to change. The paper concludes that a holistic approach involving policy support, continuous professional development, and community participation is essential for effective ICT integration in Maharashtra's secondary schools.

KEYWORDS: Keywords not detected.

Digital Learning Readiness, ICT Integration, Secondary School Teachers, Maharashtra, TPACK Framework, Teacher Training, Educational Technology

INTRODUCTION

India's education system has been undergoing a quiet transformation since the early 2010s, with technology slowly finding its way into classrooms once dominated by chalk and talk. Maharashtra, being one of India's most urbanised and economically active states, has often been at the forefront of educational reform. Yet the reality inside many secondary school classrooms tells a different story than the policy documents suggest. Teachers, who are the actual implementers of any technological reform, often find themselves caught between the promise of digital tools and the practical difficulty of using them effectively. This gap between policy intention and classroom practice forms the central concern of this paper.

Digital learning readiness is not simply about owning a computer or having access to the internet. It is a layered concept involving technical skill, pedagogical confidence, and a mindset

that is open to change. The National Policy on ICT in School Education, introduced by the Ministry of Human Resource Development, laid the groundwork for integrating technology into Indian classrooms, but its success depends heavily on how prepared teachers feel to use these tools. This paper looks closely at the Maharashtra context, where government schemes like the SARAL project and various state board digital initiatives have tried to bridge this gap, while also examining the theoretical underpinnings that explain why some teachers adapt quickly and others do not.

Theoretical Framework: Understanding Digital Readiness through TPACK

The Technological Pedagogical Content Knowledge framework, developed by Mishra and Koehler, offers a useful lens to understand digital learning readiness. According to this framework, effective technology use in teaching does not come from technical skill alone. It emerges from the intersection of three kinds of knowledge, namely knowledge of the subject matter, knowledge of teaching methods, and knowledge of technology itself. A teacher in a Maharashtra secondary school may know their subject deeply and may even be comfortable using a smartphone, but without understanding how to weave technology meaningfully into a lesson plan, the actual classroom impact remains limited. This framework helps explain why simply distributing tablets or setting up smart classrooms in schools does not automatically lead to better learning outcomes.

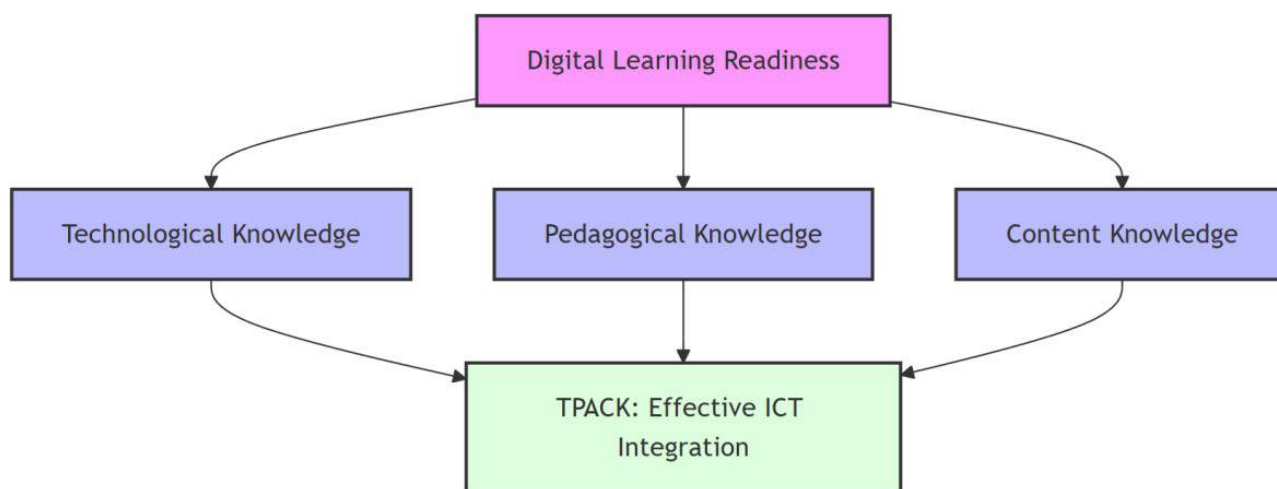


Figure 1: TPACK Framework and Digital Learning Readiness (Mermaid diagram code below — paste into mermaid.live to render)

Opportunities for ICT Integration in Maharashtra

Maharashtra offers several favourable conditions for expanding digital learning. The state has a relatively strong network of urban and semi-urban schools with better electricity and internet access compared to many other states, which provides a foundation for technology adoption. Government initiatives supporting digital classrooms, along with growing smartphone penetration among both teachers and students, have created new possibilities for blended learning approaches where traditional teaching is supported by digital resources. Many private and aided schools in cities like Pune, Mumbai, and Nagpur have already begun experimenting with smart boards, learning management systems, and digital content repositories. Additionally, teacher training colleges affiliated with universities across Maharashtra have started including basic ICT modules in their curriculum, which means newer teachers entering the profession arrive with at least some familiarity with digital tools. This generational shift, combined with supportive state policy, creates a genuine opportunity for meaningful integration rather than superficial adoption.

Challenges Faced by Secondary School Teachers

Despite these opportunities, significant challenges continue to hold back digital learning readiness across the state. Rural and semi-rural schools, which form a large portion of Maharashtra's secondary education landscape, often struggle with basic infrastructure issues such as unreliable electricity, poor internet connectivity, and a shortage of functional computers. Even where infrastructure exists, many teachers, particularly those who have been in the profession for a long time, express discomfort with using new technology, partly due to inadequate training and partly due to a fear of making mistakes in front of students. Professional development programmes, when they do occur, are frequently one-time workshops rather than sustained, ongoing support, leaving teachers without the confidence to experiment further on their own. There is also a considerable administrative burden on teachers, who are already managing large class sizes and heavy syllabi, which leaves little time or energy to explore new teaching methods. Socioeconomic disparities among students further complicate matters, as teachers must design lessons that work for students who may not have reliable access to devices or the internet at home, creating a mismatch between classroom-based digital teaching and home-based digital learning.

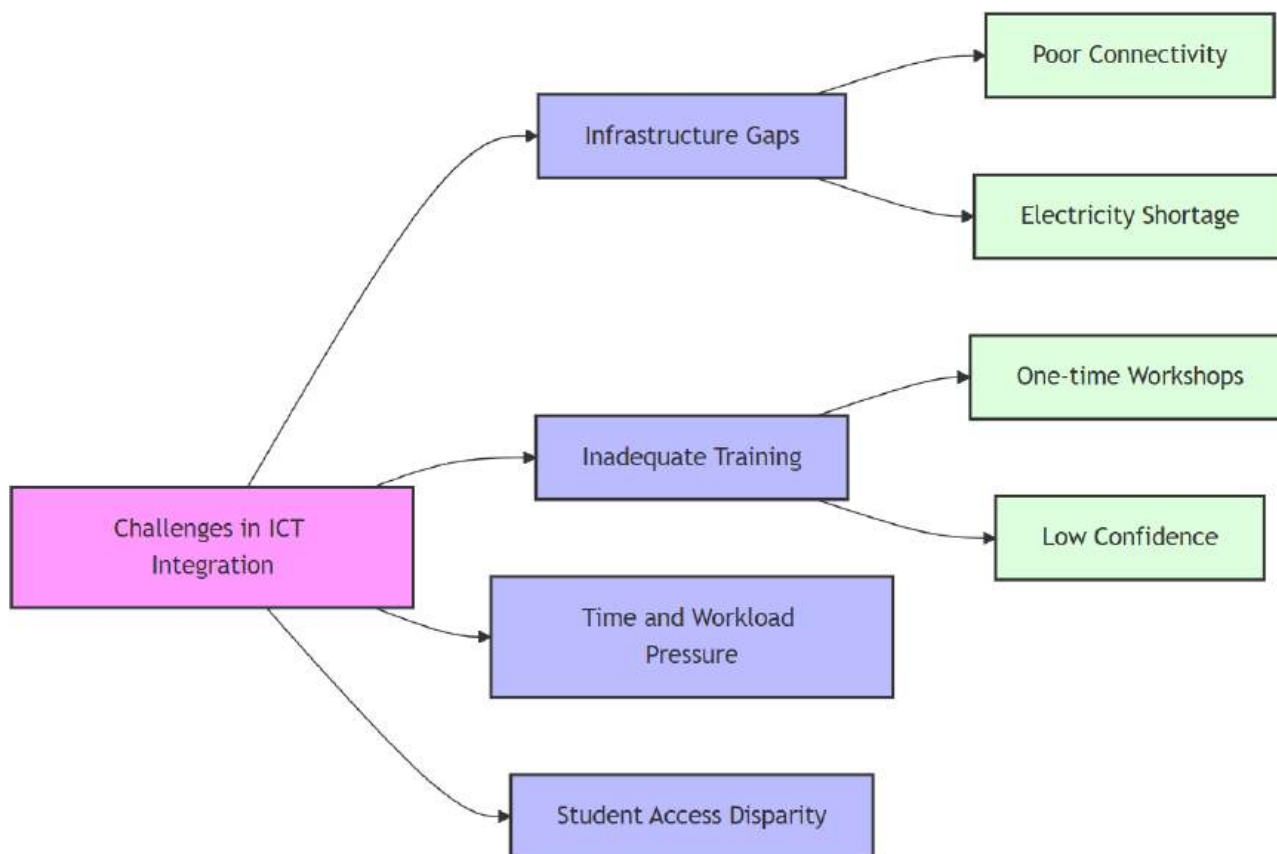


Figure 2: Key Challenges in ICT Integration (Mermaid diagram code below — paste into mermaid.live to render)

Bridging the Gap: A Path Forward

Addressing the digital readiness gap requires more than simply providing devices to schools. It calls for a coordinated effort involving policymakers, school administrators, teacher educators, and the community at large. Continuous and context-specific professional development programmes, rather than isolated workshops, would allow teachers to build confidence gradually while receiving ongoing mentorship. School leadership also plays a critical role, as principals and administrators who actively encourage experimentation with technology tend to create environments where teachers feel safe to try new approaches without fear of failure. Peer learning communities, where tech-comfortable teachers mentor their colleagues, have shown promise in other Indian states and could be replicated across Maharashtra's district-level teacher networks. Equally important is addressing the digital divide among students themselves, since technology integration in classrooms must be matched by efforts to ensure equitable access outside school hours. A phased approach that first strengthens basic infrastructure before introducing more advanced digital pedagogy tools would likely yield more sustainable results than attempting large-scale rollouts without adequate groundwork.

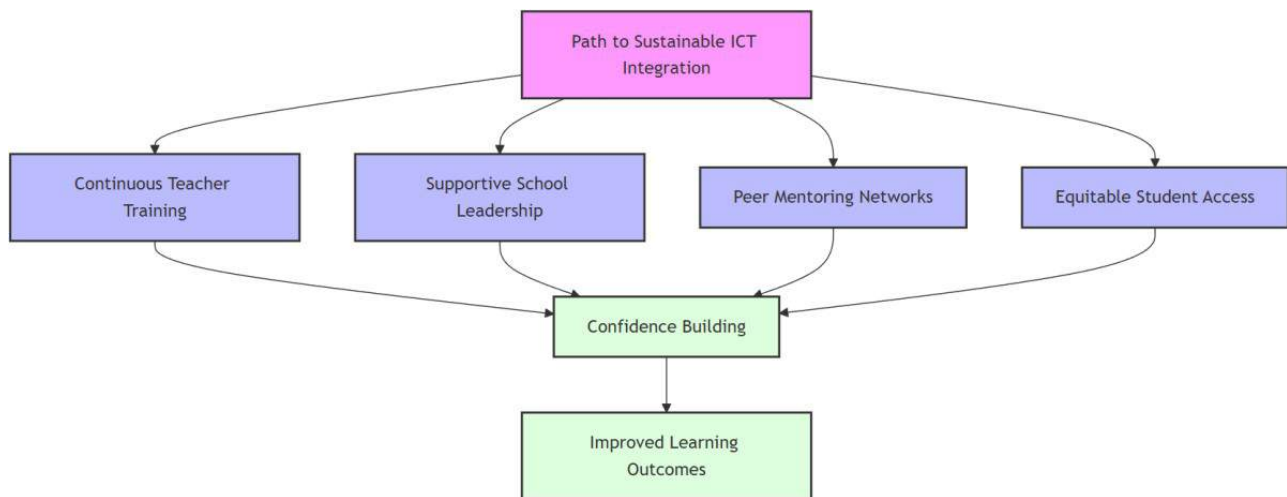


Figure 3: Pathway to Sustainable ICT Integration (Mermaid diagram code below — paste into mermaid.live to render)

CONCLUSION

Digital learning readiness among secondary school teachers in Maharashtra in 2018 reflects a state caught between genuine opportunity and persistent structural challenges. While urban schools and younger teachers show promising signs of adaptation, rural areas and experienced teachers continue to face barriers rooted in infrastructure, training, and workload. The TPACK framework reminds us that technology alone cannot transform teaching unless it is paired with pedagogical understanding and subject expertise. Future research could explore district-wise variations in readiness levels and examine how gender, age, and school type influence a teacher's willingness to adopt digital tools. As Maharashtra continues to invest in digital education infrastructure, sustained attention to teacher preparedness will determine whether these investments translate into genuine improvements in classroom learning.

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