



Modeling Technology Integration: Approaches of Teacher Educators in Professional Courses

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Abstract

This study aimed to uncover the range of technologies introduced to teachers within teacher education programs' methods courses by teacher educators. Surveying and interviewing ninety teacher educators in Indian classrooms, the research revealed a select few technologies that were predominantly used, while a moderate set of technologies were employed to a lesser extent. Regardless of experience, teacher educators demonstrated a consistent pattern in modeling technology. The implications of these findings extend to the pedagogical approaches of Indian school teachers, emphasizing the integration of technology in classroom instruction.

Keywords: *teacher educators, technology integration, methods courses, instructional technologies, pedagogy, technology modeling, technology adoption.*

1. Introduction

In the realm of education, the integration of technology has emerged as a pivotal factor in preparing future teachers to adeptly incorporate digital tools into their instructional practices. Research has highlighted the significance of immersing preservice teachers in digital backgrounds education courses (Reinders, 2019; Kundu, 2020). This immersion not only ensures their comfort and competence in utilizing diverse teaching tools but also influences the frequency and intention behind their implementation (Kopciwicz & Bougsiaa, 2021; Rahman, Yunus, & Hashim, 2022).

In an Indian pedagogy system, the adoption and successful integration of technology within educational settings have garnered attention, recognizing teachers and teacher educators as key drivers of change. Their attitudes and mastery of technology significantly impact students' engagement and learning experiences. While studies have examined technology integration among Indian school teachers, a crucial aspect remains underexplored (Mozelius et al., 2019)..

The Indian education system has made strides forward by establishing guidelines for the development of teachers' technological competences, with an emphasis on assistive technology. Nonetheless, there is a lack of knowledge on how teacher educators make use of, incorporate, and model the use of technology in teacher preparation courses. Therefore, the purpose of this research is to illuminate the role that teacher educators' use of instructional technologies plays in introducing teachers to assistive and instructional technologies.

This research aims to shed light on the crucial role that technology modelling plays in encouraging intentional and successful technology integration in Indian classrooms by investigating the sorts of technologies introduced to teachers by teacher educators in professional courses. The overarching goal of this study is to highlight the need of incorporating thorough technology integration tactics into teacher education programmes, so that future generations are taught by teachers who have the necessary expertise to prepare them for a technologically advanced environment.

2. Methodology

Ninety (90) participants from diverse teacher education programs participated. The selection of participants was purposefully done to ensure a comprehensive representation of various educational contexts. These teacher educators engaged in responding to a carefully curated inventory designed to



explore both instructional and Assistive technologies. The research employed approach, to gain a holistic understanding of the technologies employed. Simple descriptive statistics were utilized to analyze the data. The inventory encompassed a spectrum of technologies, ranging from well-established tools to the latest innovations.

The Technology Inventory Checklist, crafted by the researcher, encompassed a wide array of technologies commonly utilized in general as well as inclusive classrooms. Participating teacher educators were tasked with indicating their engagement with these technologies by marking the relevant boxes. The checkboxes were used to identify technologies they had previously employed for teachers within courses.

The data collection process encompassed six open-ended questions aimed at eliciting insights into the ways respondents integrated technology within their methods courses. These qualitative responses provided valuable context and explanations that complemented the quantitative findings, thereby facilitating a more comprehensive understanding of the study's outcomes.

3. Result

The central objective of this study was to delve into the range of technologies to which teachers are exposed in their methods courses. Through meticulous analysis, the researcher discerned the distinct types of technologies introduced and imparted by teacher educators to their students within these courses. This involved a comprehensive process of data organization and classification, aimed at identifying prevailing themes and gauging the frequency of utilization for each technology listed.

The study's outcomes shed light on the diverse array of technologies embedded in methods courses by teacher educators. The findings draw from the compiled Inventory as well as additional inputs contributed by the participants. By assessing the frequency of selections, the researcher was able to categorize these technologies into two distinct classifications: "highly used" and "moderately used." This classification was based on the number of participants indicating their utilization or prior usage of each technology.

Participants were asked to list the technologies they use in their methods classes as part of the survey's context. Some technologies emerged as more often used than others based on their replies. Elmo, iPads, and laptops were cited more often than any other single tool, followed by films, PowerPoint presentations, Smart boards, online materials, and the Desire to Learn platform. Most of the mentioned technologies also included an instructional component, making them suitable for use with a variety of teaching methods.

An impressive percentage of responders (about 10%) singled out the use of assistive technology in their methods classes as something they found very helpful. These aides included things like text-to-speech readers, magnification software, touch-screen interfaces, virtual reality headsets, interactive learning objects, and voice-over PowerPoints. Participants were also asked to detail how they incorporated "instructional" and "assistive" technology into their methodology classes.



Table 1.1 Educators require to include technology into their technique's classes.

Types of technology immerged	N	% of citation
Video	42	47.0
PowerPoint	30	33.0
Smart board	27	30.0
Internet	21	23.0
D2L	21	23.0
Computer	15	17.0
Elmo	15	17.0
iPad	12	13.0
Audio	12	13.0
Simulations	9	10.0
Prezi	9	10.0
Email Service	9	10.0
Word Processers	9	10.0

Table 1.2 Educators want to include technology into their techniques classes.



	Type of Technology Used	N	% of users
Highly used Technologies by Teacher Educators by percentage	Computer	78	87.0
	LCD Projector	78	87.0
	Word Processor	66	73.0
	Smart Board	66	73.0
	Desire to Learn	66	73.0
	Blackboard	63	70.0
	Google Docs	54	60.0

Educators for different types of highly used technologies. The table 1.2 shows the following information:

- **Computer:** 87.0% of Teacher Educators use this technology.
- **LCD Projector:** 87.0% of Teacher Educators use this technology.
- **Word Processor:** 73.0% of Teacher Educators use this technology.
- **Smart Board:** 73.0% of Teacher Educators use this technology.
- **Desire to Learn:** 73.0% of Teacher Educators use this technology.
- **Blackboard:** 70.0% of Teacher Educators use this technology.
- **Google Docs:** 60.0% of Teacher Educators use this technology.

This table likely represents the adoption rates of various technologies among Teacher Educators and suggests that computers and LCD projectors are the most widely used technologies, both being used by 87.0% of the surveyed educators. Word processors, smart boards, and Desire to Learn platforms are also commonly used, each having a usage rate of 73.0%. Blackboards and Google Docs are used by 70.0% and 60.0% of Teacher Educators, respectively.

Table 1.3 Technology usage is rather low in the methods classes.



	Type of Technology Used	N	% of users
Moderately used technologies by teacher educators by percentage	Online Tutorials	48	53.0
	Computer Animations	48	53.0
	Portable Word Processor	39	43.0
	Electronic books	39	43.0
	Low tech aids to find materials (i.e., index tabs)	39	43.0
	Document Camera	39	43.0
	Games	39	43.0
	Magnifiers	36	40.0
	Computer Simulations	36	40.0
	Software for Organization of Ideas and Studying	33	37.0
	Multimedia Software for expression of ideas	30	33.0

he table 1.3 provides information on moderately used technologies among Teacher Educators, along with the corresponding percentage of users:

- **Online Tutorials:** 53.0% of Teacher Educators use this technology.
- **Computer Animations:** 53.0% of Teacher Educators use this technology.
- **Portable Word Processor:** 43.0% of Teacher Educators use this technology.
- **Electronic Books:** 43.0% of Teacher Educators use this technology.
- **Low Tech Aids to Find Materials (i.e., index tabs):** 43.0% of Teacher Educators use this technology.
- **Document Camera:** 43.0% of Teacher Educators use this technology.
- **Games:** 43.0% of Teacher Educators use this technology.
- **Magnifiers:** 40.0% of Teacher Educators use this technology.
- **Computer Simulations:** 40.0% of Teacher Educators use this technology.
- **Software for Organization of Ideas and Studying:** 37.0% of Teacher Educators use this technology.
- **Multimedia Software for Expression of Ideas:** 33.0% of Teacher Educators use this technology.



This table indicates that online tutorials and computer animations are the most moderately used technologies among Teacher Educators, each being used by 53.0% of the surveyed educators. Portable word processors, electronic books, low tech aids to find materials, document cameras, and games are moderately used by 43.0% of Teacher Educators. Magnifiers and computer simulations are used by 40.0% of educators, while software for organization of ideas and studying is used by 37.0%. Multimedia software for expression of ideas is used by 33.0% of Teacher Educators.

4. Conclusions

According to the data, there was no consistent trend of technology use among teacher educators. Technologies that are "highly used" include personal computers, LCD projectors, word processors, smart boards, Desire to Learn, Blackboard, and Google Docs, while technologies that are "moderately used" include a wide range of tools such as online tutorials, computer animations, portable word processors, electronic books, and low-tech assistance for materials.

This study's results provide credence to teacher educators' attempts to expose preservice teachers to various forms of educational technology. The importance of promoting familiarity with various technologies to increase educational efficacy and inclusiveness is highlighted by this study, even if familiarity with these tools may vary by individual. This study highlights the role of teacher educators in shaping the future of classroom technology.

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