© SEP 2026 | IRE Journals | Volume 10 Issue 3 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV10I3-1722911

Teacher Training and Digital Competency

DR. RAGHUPATRUNI SUJATHA RANI
Professor of English, RK College of Engineering, Vijayawada, Andhra Pradesh, India.

Abstract- ***Effective teaching practice is required teachers in the digital competency era. Digital content creation, information literacy and communication are included these competencies. Through emphasizing professional development in digital learning, technical skills, and online engagement,teachers meet their goals. It recommends for continuous support and resources to help teachers adapt to evolving e-learning tools and technologies. This involves more than basic ICT skills, encompassing pedagogical judgment, digital literacy, and the ability to use technology to enhance learning, assessment, and communication. These are the part of both initial and ongoing professional development of teachers. Teacher training must focus on developing practical skills and pedagogical knowledge. Research shows that while digital skills are crucial for modern teaching, there are gaps in how training programs address them, particularly in areas like digital security and problem-solving. Studies have found varying levels of digital competency based on factors like age, gender, and experience, suggesting a need for professional development to support all teachers.***

Key words: Modern education, Pedagogical integration, Gaps in training persist, virtual classroom, technical proficiency

I. INTRODUCTION

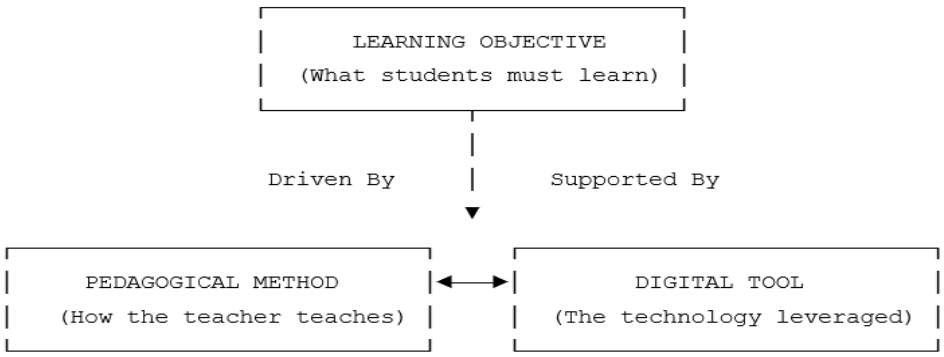
Modern education is a student-centered approach that shifts focus from rote memorization to practical skills, critical thinking, and digital literacy. Modern education needs virtual classroom. Virtual classroom is an online learning environment that allows students and teachers to interact in real time using video conferencing, interactive whiteboards, and digital collaboration tools. It utilizes technology and flexible methods to prepare learners for today's fast-changing world.

We are using digital tools as computers, smart boards, and online platforms for interactive learning. If teacher knows how to use all these tools treats teachers as guides while students actively participate. For that reason teachers firstly improves their skills building and also teaches problem-solving, creativity, and communication over memorizing facts to students. It allows students to learn online or at their own speed. It also helps to prepare students for modern jobs with real-world training. Encourages teamwork and global communication. It evaluates growth through projects and continuous work rather than rigid tests. Sothat teachers use pedagogical integration methods.

Age is also a key factor in teacher training and digital competency because older teachers often face a wider digital skills gap, experience higher tech anxiety, and possess unique learning habits compared to younger, digital-native teachers. The reason behind facing problem is older teachers grew up without modern tech. They need more basic training than younger peers. So that senior teachers often worry about making mistakes with devices. This fear slows down digital tool use. Older teachers rely more on established habits. They prefer step-by-step guides and hands-on practice. Coming to the new tools arrive fast. Older teachers may feel overwhelmed by constant digital updates. Training works best when matched to current skill levels. Mixed-age groups let tech-savvy teachers help colleagues. Slower, supportive classes boosts confidence and make lower stress and raise tech use in class.

Pedagogical integration is the deliberate process of infusing modern tools, especially digital technologies, into teaching methods to actively improve student learning to mixed-age group teachers. It is not just about bringing devices into a classroom; it is about changing how students learn by connecting technology directly to educational goals. Rather than treating technology as a separate subject or a simple substitute for paper, true pedagogical integration ensures that digital tools make lessons more interactive, accessible, and collaborative.

© SEP 2026 | IRE Journals | Volume 10 Issue 3 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV10I3-1722911



Tools are chosen by teachers only because they directly help teach a specific concept or skill. Students also be in active part in their learning for using technology to create, experiment, and solve problems rather than just read screens.Teachers shift from lecturers to facilitators, guiding students through tech-supported discoveries. So technology becomes a natural, invisible part of the daily learning environment.

In pedagogical integration four steps of the tips helps to learn and using tools easily those are Substitution, Augmentation, Modification, and Redifintion. This model is called as the SAMR Integration Model. The SAMR model helps educators measure how deeply they are integrating technology into their pedagogy:

Level	Type	Definition	Example
Substitution	Enhancement	Tech acts as a direct tool substitute with no functional change.	Typing an essay on a computer instead of writing it by hand.
Augmentation	Enhancement	Tech acts as a direct substitute with functional improvements.	Typing an essay using built-in spellcheck and voice-to-text tools.
Modification	Transformation	Tech allows for significant task redesign.	Writing an essay as a shared cloud document where peers leave live comments.
Redefinition	Transformation	Tech allows for the creation of new tasks, previously inconceivable.	Turning the essay into a multimedia podcast or video shared globally.

It boosts learners to engagement by using interactive and varied learning formats. It provides instant feedback through automated quizzes and digital assessments. It allows self-paced learning tailored to individual student needs. It builds essential digital citizenship skills required for the modern workforce.

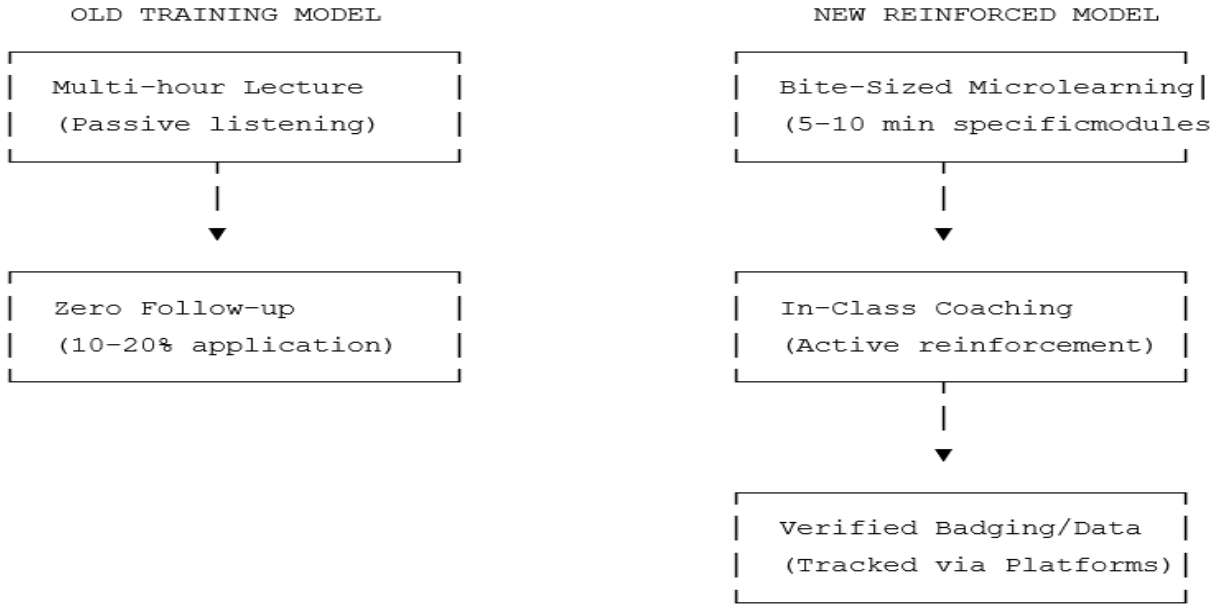
The persistent nature of training gaps is rarely due to a lack of teacher interest. According to learning science and industry data, knowledge acquisition does not reliably translate into behavior change unless the surrounding environment supports it. Studies on training transfer estimate that only 10% to 20% of learning is consistently applied back on the job without active reinforcement and ongoing practice.

In modern education, this structural breakdown is compounded by high teacher stress, tightening school budgets, and an overwhelming influx of new technology. Teachers are facing unprecedented burnout. A 2026 RAND survey highlights that while job-related stress has seen minor improvements, a significant portion of the teaching workforce remains in crisis. When teachers are chronically exhausted, they lack the mental bandwidth or “capacity codes” required to process, test, and integrate new methods.

© SEP 2026 | IRE Journals | Volume 10 Issue 3 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV10I3-1722911

Classrooms are skipping basic digitization and moving straight into advanced tech, such as adaptive learning platforms, AI literacy, and immersive VR/AR systems. Professional development (PD) cannot keep pace. For instance, a 2026 analysis found that 85% of teachers feel unprepared to manage AI in their classrooms, with nearly a third saying they are completely unprepared. Most technology training is delivered via isolated, instructor-led workshops. Without continuous tech facilitators or "lab-in-charges" to troubleshoot hardware, manage logins, and verify student pacing in real-time, teachers quickly abandon new tools and fall back on safer, traditional routines. National data from 2026 indicates that roughly out of eight, one teaching position is either entirely vacant or filled by teahers who are not fully certified for their assignments. In an environment where schools are constantly scrambling to cover basic classrooms, dedicated time for deep, high-quality pedagogical training becomes a luxury many districts cannot afford.

To overcome this stagnation, forward-thinking organizations and school districts are shifting away from traditional lecturing and moving toward embedded, practical learning frameworks:



By prioritizing microlearning (which yields up to 50% better knowledge retention than traditional courses) and focusing on platforms that reduce—rather than add to—a teacher's daily workload, educational systems can finally close the gap between buying technology and using it effectively.

If a teacher is studying educational technology, remote learning strategies, or preparing for a teaching certification exam, she can be tested her knowledge with quick assessments. Students complete assignments during live video calls while the teacher monitors them.and also students learn new content independently before class, and use live class time for interactive activities and collaborative problem-solving. Teachers lecture for the entire duration of the live class and assign the practical applications as homework. Students are completely responsible for their own learning without any live interaction or guidance from the teacher. So that teachers only can think about when the direct instruction by their "teaching" part what happens relative to when the collaborative work or homework happens. Next teachers would like to focus on something specific regarding virtual classrooms.

Gender is another crucial factor in teacher training and digital competency because it heavily influences

a teacher's digital self-confidence, how they apply technology pedagogically, and the types of devices they prefer using. Studies show that male teachers often perceive themselves as more digitally competent and report higher confidence when solving technical problems, even if their actual skills are identical to female peers. Female teachers are more likely to underestimate their digital skills. While male teachers often excel or feel more confident in hard-tech areas like hardware, programming, and data management, female teachers frequently excel in Technological Pedagogical Content Knowledge (TPACK). They are highly skilled at integrating technology directly into teaching methods and lesson plans to improve student learning.

Male and female teachers often use different tools. Men tend to rely more on desktop computers for programming and downloading content. Women often utilize mobile devices more efficiently, showing stronger familiarity with graphic design, social media, and text/image processing. In many regions, female teachers face limited time for training due to disproportionate domestic responsibilities, less access to professional-grade hardware, or fewer school-sponsored opportunities. Tailored professional development provides specific support to boost the technical self-esteem of female primary and secondary teachers. Then they becomes role modeling for Students. When female teachers become highly visible, confident users of advanced technology, they dismantle classroom stereotypes. This directly inspires girls and young women to pursue STEM fields and digital careers.

Technical proficiency refers to the specific knowledge, expertise, and practical skills required to students for performing specialized tasks, operate equipment, or utilize software within a particular field. Unlike soft skills like communication skills, technical proficiency represents the measurable "hard skills" gained through education, training, or hands-on experience. If teachers are evaluating students' skills, writing a resume, or preparing for a technical assessment, students can practice with this conceptual quiz.

Technical Proficiency and Professional Competencies like languages as Python programming, Data analysis using SQLD that is a specific, teachable technical ability, classifying it as a hard skill. If teacher has more knowledge how can easily train the students in that students can also actively listening during team meetings. Trained teachers can think about the difference between skills that are easily taught, measured, and certified (hard) versus those that are tied to personality, communication, and emotional intelligence (soft). After that its helping tailor to students need, let students know if they are looking to:add technical proficiencies to their resume or portfolio. It develops a skills assessment framework for students team or hiring process. Its listing the must-have technical skills for a specific industry (e.g., IT, finance, marketing).

II. CONCLUSION

Teacher Training and Digital Competency emphasizes that equipping teachers with digital skills is no longer optional, but a foundational requirement for modern education. Effective teacher training must shift from teaching basic computer literacy to fostering pedagogical digital competence—the ability to meaningfully integrate technology to enhance student learning. True digital competency is not just about knowing how to use a digital tool (like an app or tablet). It is about knowing when, why, and how to use that tool to improve student engagement, collaboration, and critical thinking. Technology evolves at a rapid pace. Therefore, teacher training cannot be a one-time workshop. It must be a continuous process of professional development that supports teachers throughout their careers. Providing classrooms with hardware (laptops, smartboards) is ineffective if teachers are not trained to use them. Investing in teacher training is the single most critical factor in maximizing the return on educational technology investments. The intersection of teacher training and digital competency is the cornerstone of 21st-century educational reform. Simply introducing advanced technologies into classrooms achieves little without pedagogically competent teachers to guide their use. To bridge the gap between technological potential and actual student achievement,

professional development must evolve from isolated technical tutorials into continuous, hands-on training systems. Ultimately, empowering teachers with robust digital competencies does not just modernize the classroom—it transforms teachers from static sources of information into dynamic facilitators of lifelong learning, ensuring that students are fully prepared for an increasingly digital world.

REFERENCE

[1] Digital Competence and Gender: Teachers in Training. A Case Study by Mario Grande-de-Prado, Ruth Cañón, Sheila García-Martín and Isabel Cantóns Future Internet 2020, 12(11), 204; https://doi.org/10.3390/fi12110204

[2] https://joint-research-centre.ec.europa.eu/projects-and-activities/key-competences-lifelong-learning/digcompedu_en

[3] University teachers' digital competence: A case study from Portugal S Dias-Trindade, C Albuquerque - Social Sciences, 2022 - mdpi.com

[4] Development of digital and science, technology, engineering, and mathematics skills in chemistry teacher training by Michael Elias et.al. Front. Educ., 12 September 2022.Sec. STEM Education. Volume 7 - 2022 https://doi.org/10.3389/feduc.2022.932609

[5] https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2022.932609/full