

Chapter 1

Technology–Enhanced Vocational Training: Insights Into Mobile Technology Implementation for Graduate Trainees

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ABSTRACT

Technology-enhanced learning is increasingly reshaping vocational teacher preparation by redefining how graduate trainees access, integrate, and innovate with mobile technologies in learning and professional preparation contexts. This study provides insights into mobile technology accessibility and implementation among graduate trainees enrolled in vocational teacher preparation programmes within higher education institutions. Drawing on a three-tiered ethnographic case study design, data were generated from 15 graduate trainees across five purposively selected public universities. This sample size aligns with ethnographic research traditions that prioritize depth of contextual insight over statistical generalization. Data were analyzed thematically to capture both individual experiences and institutional patterns of mobile technology use. The analysis identified three interrelated dimensions of mobile technology engagement: unequal access to digital resources, adaptive implementation practices shaped by contextual constraints, and the emergence of innovation-oriented professional cultures. Mobile technologies enhance creativity,

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collaboration, and practice-based learning among graduate trainees, especially in lesson planning and peer interaction. However, poor infrastructure, limited institutional support, and weak policies constrain their impact. Strengthening access and embedding context-sensitive technology-enhanced strategies is essential for inclusive, resilient, and innovation-driven vocational teacher preparation.

INTRODUCTION

Technology-enhanced learning in higher education reflects a substantive pedagogical shift from instructor dominated transmission models toward learning environments in which digital tools actively mediate engagement, self-regulation, and innovation (Enbeyle et al., 2022; Orji & Perumal, 2024a; Orji & Perumal, 2024b; Ohanu et al., 2025). Rather than signaling the mere presence of digital infrastructure, technology enhanced learning foregrounds the purposeful integration of technological resources into instructional practices that support learner empowerment, collaborative knowledge construction, and applied problem solving (Ng, 2021; Selwyn, 2021; Viberg et al., 2018). Mobile technologies occupy a particularly influential position within this paradigm because they enable continuous access to learning resources, peer interaction, and reflective practice beyond formal classroom settings, thereby extending both cognitive and social dimensions of learning (Crompton & Burke, 2018; Al-Emran et al., 2016). When pedagogically aligned, mobile supported learning environments can strengthen learners' autonomy, competence, and relatedness, which are widely recognised as motivational foundations for sustained engagement and deep learning (Deci & Ryan, 2000; Zimmerman, 2002). However, the realization of technology enhanced learning remains uneven across higher education systems. In many developing higher education systems, inadequate infrastructure, inconsistent institutional support, and digital literacy gaps restrict equitable access to mobile technologies and constrain students' opportunities to participate fully in innovative learning environments (Bawack & Kamdjoug, 2020; Ifinedo et al., 2020). Understanding how graduate trainees experience and navigate these structural conditions is therefore essential for designing technology enhanced learning environments that translate digital opportunity into meaningful and inclusive educational innovation.

Although mobile learning has become integral to technology enhanced learning in higher education, important questions remain regarding how students' access and implement mobile technologies as instruments of engagement and innovation within formal learning environments. The literature has widely documented the pedagogical affordances of mobile learning, including learner autonomy, personalization, and collaborative interaction, particularly in relation to flexibility of access and learner control over learning processes (Kearney et al., 2012; Viberg & Grönlund, 2017).

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