Chapter 11
The Future of Global Vocational Teacher Education With Technology-Enhanced Learning:
Prospects and Constraints

Offia Tugwell Owo
http://orcid.org/0000-0001-8754-3531
Ignatius Ajuru University of Education, Port Harcourt, Nigeria

ABSTRACT

This article clearly examined the transformation of global vocational teacher education through technology-enhanced learning (TEL), presenting a theoretically grounded analysis of both enabling prospects and constraining factors. The study argues that successful TEL integration requires systemic transformation rather than mere technological adoption. Through critical engagement with empirical evidence this analysis reveals three paradoxes that challenge conventional assumptions: the personalization-standardization paradox, the access-exclusion paradox, and the innovation-preservation paradox. This work aligns with Sustainable Development Goal 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth) by examining how technology-enhanced vocational teacher education can improve educational quality while strengthening workforce development. The study concludes that the future of vocational teacher education depends on vitally informed, contextually responsive approaches that preserve vocational education's essential character while leveraging digital affordances strategically.

DOI: 10.4018/979-8-3373-5865-9.ch011

INTRODUCTION

Global vocational teacher education stands at a critical juncture where the confluence of technological innovation, economic restructuring, and demographic shifts demands fundamental reconceptualization of professional preparation models. However, the prevailing discourse often succumbs to technological determinism, assuming that digital tools inherently improve educational outcomes without critically examining the complex social, pedagogical, and institutional factors that mediate technology's impact (Selwyn, 2016). This article challenges such assumptions by presenting evidence-based analysis demonstrating that technology-enhanced learning (TEL) in vocational teacher education represents neither inevitable progress nor simple disruption, but rather a complex transformation requiring critical theoretical engagement and empirical scrutiny.

The urgency surrounding TEL integration often obscures fundamental questions about its appropriateness for vocational contexts. Unlike general education, which primarily transmits codified knowledge, vocational education depends fundamentally on tacit knowledge, embodied skills, and situated cognition developed through authentic practice (Billett, 2001). As Schön (1983) demonstrated, professional expertise emerges through reflection-in-action and cannot be reduced to explicit rules or algorithmic procedures. This raises a critical question: Can technology-enhanced learning, which necessarily codifies and structures knowledge, adequately support the development of vocational teaching competencies that are inherently contextual, improvisational, and experiential?

Recent large-scale studies reveal troubling patterns that contradict optimistic narratives about educational technology. The OECD's (2015) comprehensive analysis of PISA data across 64 countries found no appreciable improvements in reading, mathematics, or science performance despite massive investments in educational technology, with some evidence suggesting negative correlations between intensive computer use and academic achievement. Similarly, Reich and Ruipérez-Valiente's (2019) analysis of 12.67 million learners across 261 MOOCs revealed completion rates averaging only 3.13%, with persistent inequalities favouring already advantaged populations. These findings demand critical examination of whether technology-enhanced learning can fulfil its promises in vocational teacher education contexts.

Background: Global Imperative for Vocational Teacher Education Transformation

The urgent need to transform vocational teacher education through technology-enhanced learning emerges from the intersection of multiple global challenges documented in the 2030 Agenda for Sustainable Development. Specifically, this study

Promoting Active Learning in Mathematics Teacher Education: The Flipped Classroom Method and Use of Video Content

Rukiye Didem Taylan (2017). *Handbook of Research on Transformative Digital Content and Learning Technologies (pp. 269-284).*
www.irma-international.org/chapter/promoting-active-learning-in-mathematics-teacher-education/174057