Fostering Innovation: Professional Development Strategies for Leveraging Digital Technologies in P–16 Education

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EXECUTIVE SUMMARY

Digital technology professional development (PD) in P-16 education is discussed in this chapter. Social, economic, and institutional intelligence must be integrated to educate pupils for a technology-driven future. The chapter discusses how educational technology has evolved from rote behaviorism and computer-based drills to reflective use, addressing issues including insufficient training and resources. The chapter provides a comprehensive overview of strategies and approaches to help educational institutions create a robust PD framework, ensuring that current and future educators can effectively utilize digital technologies in their teaching practices. The importance of specialized guidance, constant learning, and collaboration to integrate digital tools into classroom activities is discussed. The chapter emphasizes improving instruction and student outcomes and preparing educators to use digital technologies. The ultimate goal is to incorporate digital technologies

into learning environments, promoting innovation and educating students for a knowledge-based global society.

INTRODUCTION

In the 21st century, educational institutions at all levels are redefining their approaches to preparing young people for future work, citizenship, and personal development (Dishon & Gilead, 2021; González-Salamanca et al., 2020). The concept of the P-16 continuum has gained traction, emphasizing the interconnectedness of social, economic, and institutional intelligence necessary for success in a technology-driven and rapidly changing environment. Professional development (PD) initiatives and the creation of new opportunities to prepare learning communities to work innovatively with digital technologies are pivotal in advancing the understanding of essential skills and economic trends. Within daily classroom activities, the tangible impact of technology is evident in the widespread use of computing tools; learners utilize web resources and networked collaborations to accomplish tasks, thereby transforming both task architecture and product conception (Rodić & Granić, 2022; Ross, 2020).

Ideally, educational technology should enhance learning and enable students to thrive in a highly competitive, knowledge-based global society (Ahmad, 2024; Wirba, 2021). However, the integration of technology in education remains uneven. While some innovators are exploring uncharted territories and early adopters are shaping new technological tools and applications, most educators rely on second-hand advice, trial-and-error experimentation, and a fear of failure to begin effectively working with new and emerging technologies (Bjørndal & Ronglan, 2024). This raises a critical question: *How can schools and postsecondary education institutions with limited resources for PD create a culture that is both interested in and comfortable with technology use?*

This chapter outlines PD strategies to leverage available resources within a large district, an educational service center, and diverse school buildings and preservice programs across Southern Ohio and local counties. The strategies are intended to foster a culture of innovation and technological fluency among educators, enabling them to better prepare students for the demands of a digital world.

The transition towards integrating digital technologies in educational settings began in earnest in the 1990s, shifting focus from rote behaviorism and computer-based drill practices to the reflective use of instructional technology in the classroom (Schmidt & Tang, 2020). Despite these efforts, many educators still face significant challenges, including a lack of training and time to effectively use advanced digital technologies. Resources emphasizing interactive exercises and the use of digital