# Chapter 4
# Design-Based Research in Electronic Training System for Professional Development

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## ABSTRACT

*This chapter discusses the design and development of TaSPoD (electronic training system for professional development) using design-based research (DBR) approach. TaSPoD is essential for enhancing professional development in higher education by integrating electronic training into development plans, benefiting institutions, experts, and trainees. The DBR approach merges design principles with solutions tailored to the needs of e-training environments, facilitating the design, development, and evaluation of TaSPoD. The initial analysis phase identifies training issues, while the design phase focuses on creating effective training modules and the system framework. Experts gather further information to refine TaSPoD's design using the applied cognitive task analysis (ACTA) method. After validating the cognitive tasks, the TaSPoD prototype will be developed and evaluated for effectiveness by experts. Ultimately, TaSPoD aims to bridge cultural, religious, and technological gaps, enabling educators of all genders to engage in professional development and maximize their potential.*

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## 1. INTRODUCTION

Educational organizations such as the higher learning institutions play a vital role in shaping the future of social and economic growth of a country. With the high demand for skilled employees in the market, higher learning institutions need to consistently produce high-quality employees. Given the advancement of technology and the fact that most adults entwined their daily activities with computerized innovation (Tawafak, Malik, & Alfarsi, 2021), higher learning institutions are challenged to provide adequate resources and training for their educators to enhance the effectiveness of the teaching and learning processes. Thus, having electronic training (e-training) system provides the opportunities for continuous learning for educators (Shahzad, Hassan, Aremu, Hussain, & Lodhi, 2021), without having to attend a conventional facility.

The deliverables of this research at the initial stage include the development of the research design framework for the development of an e-training system, named 'Electronic Training System for Professional Development' (TaSPoD). TaSPoD allows educators to obtain a personal learning experience enhancing their professional development and equip educators' competency, professionalisms, knowledge, skills and practices in an effective way.

### 1.1 Rationale of using Design-Based Research

In the digital age where computers and Internet technology have a steady presence, higher education institutions need to strive to cope with technological innovations to offer teaching and learning environment that respond to a digital and connected world. The development of personalized e-training system that offers social interaction that is likely to have positive intentions towards using the system. Achieving successful integration of technology into education requires quality professional development programs. The need for continuous adaptation and innovation makes Design-Based Research (DBR) a suitable methodological approach. DBR allows for iterative testing and refinement of educational technologies within real-world contexts, ensuring that the e-training system is both effective and responsive to the needs of educators and learners.

#### 1.1.1 Research Significance

This research is highly significant in establishing the professional development on higher learning institutions. The design and development of TaSPoD will assist the concern users: institution, administration, experts and trainees to integrate the e-training into their professional development plan. Thus, the needs and concerns