Transition from Hands-On Learning To A Simulated Learning: An Investigation On Readiness, Challenges And Performance Among Polytechnic Students

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Abstract

The COVID-19 pandemic forced an abrupt shift in learning modalities, requiring students to transition from hands-on practical learning to simulation-based methods. This study investigates the readiness and challenges faced by diploma students at Politeknik Kuching Sarawak (PKS) in adapting to this change, focusing on electronic courses such as Measurement Devices and Electrical Technology. Using a quantitative research design, data were collected from 116 semester 2 and 3 students via a structured questionnaire. Statistical analyses, including t-tests, ANOVA and multiple regression were applied to assess differences based on gender and school learning streams and explore the relationships between readiness, challenges and academic performance. Key findings indicate that while gender does not significantly influence readiness or challenges, variations in school learning streams impact the challenges faced. Readiness was found to be a stronger predictor of academic performance than the challenges encountered. The study underscores the importance of preparatory measures to enhance readiness, such as tailored training programs, to ensure effective adaptation to simulation-based learning. Future research should explore additional factors, such as technology access and institutional support, to provide a comprehensive understanding of this transition.

Keywords **:** *Challenges; Computer Simulation; Hands On Experience; Readiness; Student Achievement*