

Cybersecurity Protection Motivation in the Age of AI Driven Threats among State University Students in Sri Lanka

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Abstract

The rapid advancement of artificial intelligence (AI) has introduced complex cyberthreats such as deepfake scams, AI-generated phishing, and adaptive malware, which are harder to detect than traditional attacks. Sri Lankan university undergraduates, who rely heavily on digital technologies, are increasingly vulnerable due to limited awareness and readiness. This study investigates how AI-driven threats influence students' motivation to adopt protective cybersecurity behaviors, guided by the Protection Motivation Theory (PMT). It examines five psychological constructs: Self-Efficacy in Handling AI Threats, Perceived Vulnerability to AI Threats, Perceived AI Threat Severity, Cybersecurity Knowledge of AI Threat, and Response Efficacy toward AI Threats. Using a quantitative design, data were gathered from 384 students across 17 state universities through a structured questionnaire and quota sampling. Statistical analysis via SPSS confirmed strong reliability (Cronbach's $\alpha > 0.70$) and validity ($KMO = 0.873$, $p < 0.001$). Correlation results showed significant positive relationships between all constructs and protection motivation ($r = 0.68-0.78$, $p < 0.01$). Regression results indicated that the model explained 72% of the variance ($R^2 = 0.72$), with Response Efficacy as the strongest predictor ($\beta = 0.284$, $p < 0.001$). The findings emphasize the importance of strengthening students' confidence, awareness, and belief in effective cybersecurity measures. Outcomes are expected to benefit universities, educators, policymakers, and industry stakeholders by guiding targeted awareness programs, curriculum reforms, and institutional policies that enhance digital resilience against AI-driven threats.

Keywords: artificial intelligence, AI-driven threats, cybersecurity protection motivation, protection motivation theory, state university students