Implementation of the SAU10212 Telegram Bot in Vehicle Electrical Systems: An Evaluation of Usability, Acceptance, and Student Performance at Pasir Salak Community College

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Abstract

The integration of digital technology in higher education has facilitated more interactive and engaging pedagogical practices, consistent with the objectives of the Malaysia Higher Education Plan (RPTM) for 2026 - 2035. Traditional pedagogical approaches in technical disciplines are frequently hindered by limited access to responsive and interactive reference tools. Consequently, students struggle to visualize intricate vehicle electrical systems using static manuals, ultimately affecting their practical proficiency within continuous assessments. This study established three primary objectives: to evaluate the usability of SAU10212 Telegram Bot as a digital support platform, to identify student acceptance, and to compare overall student performance before and after the bot's implementation. Utilizing a census sampling technique, data were gathered from a total population of 54 students enrolled in the first semester of the automotive technology program across two academic sessions. To ensure a comprehensive evaluation, survey-based data were synthesized with a longitudinal analysis of student marks across two academic sessions. Descriptive statistical analysis conducted using SPSS Version 31 yielded high mean scores for interface configuration (4.34), functional evaluation (4.32), and user validation (4.36), indicating strong usability and widespread student acceptance. Furthermore, a comparative analysis of student performance across sessions revealed a positive upward trend following the bot's introduction. In summary, the SAU10212 Telegram Bot functions as a robust digital support mechanism, promoting a flexible learning environment that substantially enhances educational outcomes for vehicle electrical systems module.

Keywords: *Automotive technology; digital; education; SAU10212 Telegram Bot; vehicle electrical systems*