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EVALUATION OF A DIGITAL PROJECT-BASED MATHEMATICS LEARNING APPROACH IN HIGHER EDUCATION: AN ANALYTICAL PROCEDURE IN STRUCTURAL EQUATION MODELLING

(Penilaian Pendekatan Pembelajaran Matematik Berasaskan Projek Digital dalam Pendidikan Tinggi: Prosedur Analitik dalam Pemodelan Persamaan Struktur)

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ABSTRACT

Due to the rapid changes in technology, implementing digital project-based or technology-enabled learning approaches are the new initiatives in higher education. Learning mathematics through conventional methods often leads to disengagement and lack of motivation among students. To encounter the problems raised in conventional learning environment, a video assignment project was implemented to enhance collaborative learning. This paper aims to explore the students' perception and attitude towards the video assignment project. In this study, data was collected from 202 students of whom have completed the video assignment project in mathematics using a questionnaire developed based on Technology Acceptance Model (TAM). Two-step analytical procedures in structural equation modelling by using partial least squares were applied in analysing the data. Results showed that the students' perspective on the enjoyment in completing the project, ease of use regarding technology in video creation and the perceived usefulness of the project were the contributing factors that lead to a positive attitude towards the video assignment project. Positive correlations were also found among these variables. The implications of this work were important for both educators and researchers where the research findings indicated that the video assignment in mathematics could be a useful learning approach that engage students in active learning, develop a wide range of soft skills and increase their interest in leaning mathematics.

Keywords: mathematics; structural equation modelling; Technology Acceptance Model

ABSTRAK

Disebabkan oleh perubahan pesat dalam teknologi, pelaksanaan pendekatan pembelajaran berasaskan projek atau teknologi digital merupakan inisiatif baharu dalam pendidikan tinggi. Pembelajaran matematik melalui kaedah konvensional selalunya membawa kepada ketidakterlibatan dan kekurangan motivasi dalam kalangan pelajar. Untuk mengatasi masalah yang dibangkitkan dalam persekitaran pembelajaran konvensional, projek tugasan video telah dilaksanakan untuk meningkatkan pembelajaran kolaboratif. Kertas kerja ini bertujuan untuk meneroka persepsi dan sikap pelajar terhadap projek tugasan video. Dalam kajian ini, data telah dikumpul daripada 202 pelajar yang telah menyiapkan projek tugasan video dalam matematik menggunakan soal selidik yang dibangunkan berdasarkan Model Penerimaan Teknologi (TAM). Prosedur analisis dua langkah dalam pemodelan persamaan struktur dengan menggunakan kuasa dua terkecil separa telah digunakan dalam menganalisis data. Keputusan menunjukkan bahawa perspektif pelajar tentang keseronokan menyiapkan projek, kemudahan penggunaan teknologi dalam penciptaan video dan persepsi kegunaan projek adalah faktor penyumbang yang membawa kepada sikap positif terhadap projek tugasan video. Kolerasi positif juga didapati antara pembolehubah ini. Implikasi kerja ini adalah penting untuk pendidik dan penyelidik di mana dapatan kajian menunjukkan bahawa tugasan video dalam matematik boleh menjadi pendekatan pembelajaran berguna yang melibatkan pelajar

dalam pembelajaran aktif, membangunkan pelbagai kemahiran insaniah dan meningkatkan minat mereka dalam pembelajaran matematik.

Kata kunci: matematik; pemodelan persamaan struktur; Model Penerimaan Teknologi

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