

Relationship between Self-Efficacy and Learning Motivation towards the Acceptance of E-Learning among TVET Students

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Abstract

In response to the global shift towards digital transformation in education, the Malaysian education system has witnessed a significant transition from traditional face-to-face learning to the integration of 21st-century education principles. The COVID-19 pandemic further accelerated this shift, causing unprecedented disruptions and prompting the adoption of E-Learning platforms in educational institutions. While e-learning offers flexibility and accessibility, its acceptance among students, particularly in Technical and Vocational Education and Training (TVET) institutes such as community colleges, polytechnics, and other private institutes, remains a topic of consideration. Hence, this study focuses on understanding the relationship between students' acceptance of E-Learning, with a specific emphasis on self-efficacy. This quantitative survey involved 155 students from several TVET Institutions in Kajang, Malaysia. The instrument were adapted from (Latip et al., 2020; Panergayo et al., 2022). The study reveals a statistically significant correlation between motivation and the acceptance of E-Learning, with a p -value less than 0.001. The high positive effect size coefficient (0.828) suggests a strong association between motivation and E-Learning acceptance. These insights can inform educational policies and practices aimed at promoting a positive and supportive learning environment for E-Learning adoption in technical and vocational education. As the demand for E-Learning continues to rise globally, understanding the dynamics at play within the Malaysian context will contribute valuable knowledge to education policymakers, institutions, and practitioners.

Keywords: Self-Efficacy, Learning Motivation, Learning Management System (LMS), Technical and Vocational Education and Training (TVET), E-Learning

Introduction

The integration of 21st-century education into the Malaysian education system aligns with the digital transformation goals outlined in the Development Plan of Malaysian Education (PPPM) 2013–2025 (Ministry of Education Malaysia, 2013). Preceding the Covid-19 pandemic,

conventional face-to-face classroom learning methods were predominant in nearly all educational institutions. While some establishments had initiated the adoption of blended classrooms, incorporating a mix of in-person and online learning, a substantial number persisted with traditional approaches (Dhawan, 2020). However, the emergence of the Covid-19 pandemic brought about a profound disruption to the global education landscape. The unprecedented challenges posed by the pandemic significantly altered the state of educational systems worldwide, affecting more than 1.6 billion students across over 190 countries (Dhawan, 2020). The need to curb the spread of the Covid-19 disease prompted a swift and widespread transition to alternative learning modalities. E-Learning constitutes a variant of distance education wherein the educational process occurs either partially or entirely via the Internet. Nguyen (2015) defines E-Learning broadly, encompassing any learning setup that incorporates significant online components. These digital platforms are extensively employed across academic institutions, serving as a viable alternative to traditional teaching methods. The transition to an online learning paradigm has reshaped the educational landscape, moving away from traditional physical settings to virtual platforms. Online courses cater especially well to individuals inclined towards self-regulated learning, a pivotal element for achieving success in the online learning environment (You & Kang, 2014). The on-going adoption of this approach is predominantly motivated by the anticipation of improved performance, self-assurance in one's abilities, social persuasion, and various other determinants (Lwoga & Komba, 2015). Crucially, the increasing interest in E-Learning is attributed to its capacity to connect with a worldwide audience, distinctive features, ease of access, and enduring adaptability (Azhari & Ming, 2015). However, the use of E-Learning among consumers, including students and school teachers in Malaysia, is still inadequate. Previous studies have also focused on the use and acceptance of E-Learning in schools. Community Colleges, Polytechnics and private TVET centres are the Technical and Vocational Education and Training (TVET) institutes in Malaysia that offers vocational certificate, diploma and degree level education to students. Therefore, a study is conducted among Malaysian TVET students to identify students' self-efficacy and Learning Motivation towards the acceptance of the E-Learning platform.

Problem Statement

The extent to which students embrace E-Learning is diverse, with individual reactions and adaptability to this mode of education varying significantly. It is noteworthy that certain students may encounter challenges or difficulties in adjusting to and fully engaging with E-Learning platforms, reflecting a spectrum of responses and experiences within the student population (Khan et al., 2020). Malaysian higher education institutions found that self-efficacy significantly strengthens the relationship of performance expectancy and social influence towards E-Learning acceptance (Latip et al., 2022). The adoption of online education platforms has become increasingly prevalent, driven by technological advancements and global connectivity. One potential factor that could influence a student's acceptance of E-Learning is their self-efficacy, or their belief in their ability to succeed in a specific task (Bandura, 1997).

As online learning becomes more popular, some students find it challenging to embrace it fully. Understanding how students' belief in their own abilities, known as self-efficacy, influences their acceptance of E-Learning is the key to improve its effectiveness in education. In recent years, E-Learning has gained increasing popularity due to advancements in

technology and its convenience in providing education to a broad audience. However, despite the numerous advantages and positive aspects associated with eLearning, the key to its successful acceptance and adoption lies in understanding the factors that shape individuals' preferences towards it. Therefore, it is crucial to investigate the relationship between self-efficacy and learning motivation towards the acceptance of E-Learning among students, as this could offer insights into how to enhance the effectiveness and efficiency of E-Learning in the future.

Research Objective

- I. To determine the level of the self-efficacy among of the TVET students with E-Learning in Malaysia
- II. To determine the level of the learning motivation among of the TVET students with E-Learning in Malaysia
- III. To determine the relationship between self-efficacy and learning motivation towards the acceptance of E-Learning among TVET students

Research Questions

- i) What is the level of the self-efficacy among Malaysian TVE students with E-Learning
- ii) What is the level of the learning motivation among Malaysian TVE students with E-Learning
- iii) What is relationship between self-efficacy and learning motivation, towards the acceptance of E-Learning among Malaysian TVET students

Literature Review

The introduction of the psychological concept of self-efficacy is widely seen as a crucial contribution to educational psychology (Van Dinther et al., 2011). As defined by Bandura (1977, p. 193) self-efficacy pertains to the "belief in one's capabilities to organize and execute the courses of action required producing given attainments". This idea significantly affects how individuals feel, think, and act in different situations, influencing how they tackle goals, tasks, or challenges. The self-efficacy theory highlights the important interaction between the individual, the environment, and behavior. Research in education shows that self-efficacy has a positive impact on students' motivation, engagement in tasks, and academic success. Studies by Honicke and Broadbent (2016); Köseoğlu (2015); Margahi et al (2018) support this idea. However, Basar et al (2021) argue that poorly executed online learning can have negative effects on students. They claim that the lack of enough opportunities for human interaction in online settings hinders collaborative support and discussions on the subject matter.

According to Basak et al (2018), E-learning is defined as a method of education that utilizes digital technologies to deliver content and facilitate learning activities. It provides flexibility and control for students to choose the time and place to study, allowing them to organize their learning activities according to their preferences and needs. E-Learning takes into account the needs and interests of the student themselves (ASTD & Masie, 2001). This is supported by Bandura (1994) who found that a positive attitude towards learning has a strong effect to student motivation. This is closely related to the student's own habits whether making use E-Learning as an interest when using the internet or otherwise. Nevertheless, there exists a limitation in the quality of interaction within E-Learning, resulting in lower trust levels concerning feedback and team activities when compared to traditional learning methods.

Additionally, E-Learning contributes to an increased workload for both students and instructors, particularly in terms of time and effort required for preparation. Hence, it is crucial to evaluate the acceptance of the E-Learning method by students.

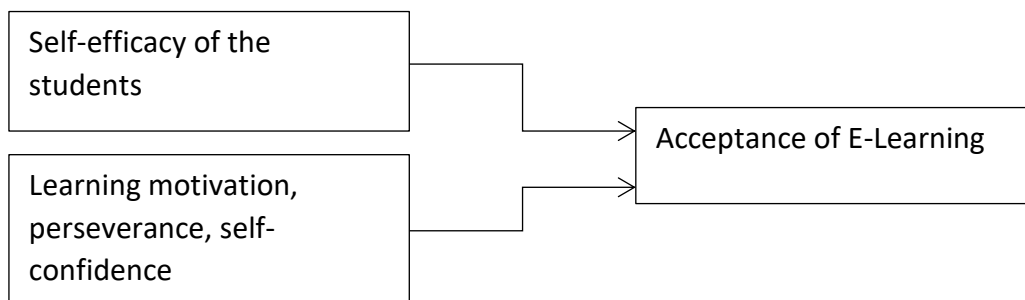


Figure 1. Conceptual Framework

Underline Theory

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), first developed by Davis (1986), seeks to explain users' propensity to embrace computer usage and information and communication technology (ICT). Central to TAM are pivotal variables like perceived usefulness (PU) and perceived ease of use (PEOU), acting as substantial predictors of users' attitudes and behavioral intentions in adopting technology. Initially conceptualized by Davis (1986), TAM aims to elucidate users' proclivity towards adopting computer usage and information and communication technology (ICT). At its core, TAM incorporates crucial variables such as perceived usefulness (PU) and perceived ease of use (PEOU), which play pivotal roles as predictors of users' attitudes and intentions in relation to the adoption of technology.

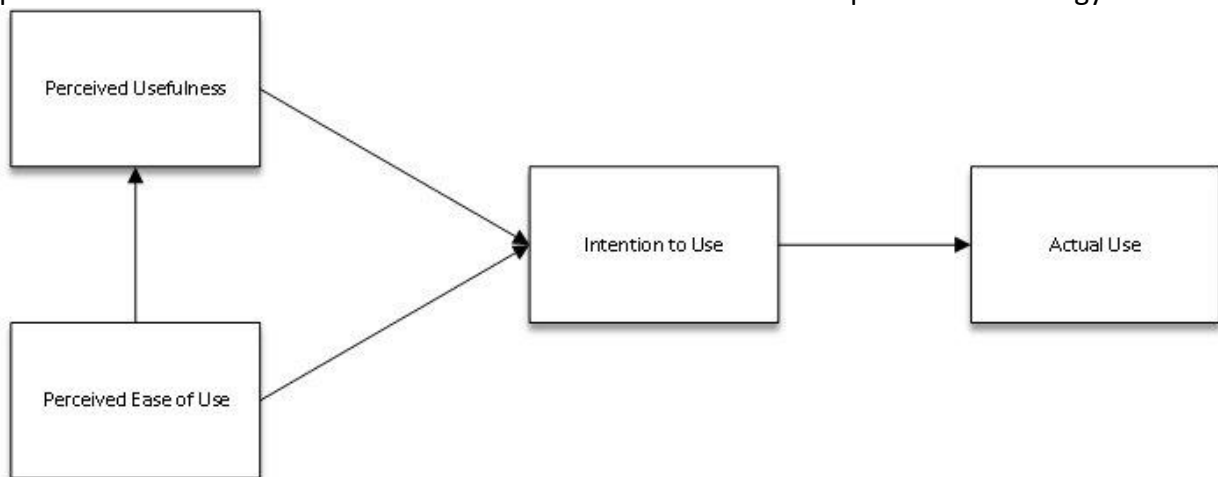


Figure 2. Technology Acceptance Model (TAM)

Self-efficacy

Self-efficacy theory, developed by Albert Bandura, is a psychological concept that refers to an individual's belief in their own ability to succeed in specific situations or accomplish a task. The theory states that self-efficacy influences the choices people make, the effort they put forth, and how long they persist in the face of obstacles. It is derived from four principal sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977). Self-efficacy in e-learning refers to an individual's belief in their ability to succeed in an online learning environment. A study on

management students found that academic and internet self-efficacy positively affect self-regulation, even in an e-learning environment (Gupta & Bamel, 2023).

Methodology

Research Design

The research entailed the use of a survey study. This study aims to determine the relationship between self-efficacy and learning motivation towards the acceptance of E-Learning among TVET students. The target population for this study comprises students currently enrolled in Technical and Vocational Education courses at community colleges and vocational centres in Kajang. Kajang is a town located in the state of Selangor, Malaysia. Selangor is one of the states in Peninsular Malaysia, situated on the western part of the country. Kajang is specifically situated to the south of Kuala Lumpur, the capital city of Malaysia, and is part of the Klang Valley metropolitan area. Stratified Random Sampling is a method employed in research to make sure that various subgroups or categories within a population are sufficiently included in the sample (Iliyasu, 2021). Hence, Stratified Random Sampling has been used to ensure representation from different segments of the population, and the Krejcie and Morgan table to determine the appropriate sample size for each stratum, resulting in a total sample size of 155 students out of a population of 260.

Study Instrument

A total of 155 participants received a set of questionnaires, and the collected responses were analyzed and extrapolated to represent the entire study population. The administration of questionnaires proves to be a more efficient and cost-effective method, particularly given the study's extensive coverage of a large population with respondents scattered across diverse locations (Creswell & Creswell, 2018). As a result, implementing this approach has the potential to diminish the researcher's impact and bias, fostering an environment that prompts respondents to provide more precise and genuine answers. The questionnaire used in this study is an adaptation (Panergayo & Mansujeto, 2022; Latip et al., 2020). For the section Learning Motivation, Self-Efficacy as in Learning in Online Environment and Self-Efficacy as to Time Management there are 17 items, meanwhile, the section of E-Learning acceptance consists of 5 items.

Results and Findings

Table 1

Demographic findings

Demographic	Characteristic	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	65	41.9	41.9	41.9
	Female	90	58.1	58.1	100
Age	18-20	55	35.5	35.5	35.5
	21-25	58	37.4	37.4	72.9
	>25	42	27.1	27.1	100.0
Education Level	Diploma	90	58.1	58.1	58.1
	Degree	65	41.9	41.9	100.0

Results drawn from the data is that in the given sample of 155 individuals, there is a gender imbalance, with males constituting a higher percentage (58.1%) compared to females (41.9%). Meanwhile, the age distribution data for the sample of 155 individuals reveals that 35.5% are in the 18-20 age range, 37.4% fall within the 21-25 age group, and 27.1% are 26 years and above. The valid percent accounts for the percentages based on valid responses, excluding any missing or invalid data. Cumulatively, the data shows that the majority of the sample is between the ages of 18 and 25, comprising 72.9% of the total. The remaining 27.1% are 26 years and above. The data indicates that 0.6% have an education level labeled as "1," 57.4% hold a degree, and 41.9% have a diploma. The cumulative percent shows that 58.1% have at least a degree, while 100% possess a diploma or higher.

T-test Analysis

A T-test was conducted to determine any difference in self-efficacy between males and females. The table below shows the mean of self-efficacy in different genders.

Table 2
Self-efficacy between males and females

Characteristics	Gender	N	Mean	Std. Deviation	Std. Error Mean
Self-efficacy	Male	90	4.3444	.83681	.08821
	Female	65	4.4923	.64039	.07943

According to Table 2, the mean self-efficacy is 4.3444 ± 0.83681 for males. However, the mean self-efficacy in females is higher, which is 4.4923 ± 0.64039 . The result can be further analyzed using an independent T-test, as in table below.

Table 3
The independent T-test result

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Significance One-Sided <i>p</i>	Two-Sided <i>p</i>
Self_efficacy	Equal variances assumed	1.233	.269	-1.194	153	.117	.234
	Equal variances not assumed			-1.246	152.455	.107	.215

According to Table 3, the *p*-value for Levene's test is 0.269, indicating non-significance. Consequently, the null hypothesis of Levene's test is accepted, suggesting similarity in the variance of self-efficacy between males and females. Assuming equal variances, the mean difference is -0.14786, calculated by subtracting the mean of the first group (4.3444) from the

mean of the second group (4.4923). The negative t value suggests a higher mean in females than males. However, the *p*-value (0.234) is not significant, and the 95% confidence interval is [-0.39253, 0.09681], encompassing both negative and positive values, supporting the insignificance of the results. In conclusion, there is no significant difference in self-efficacy between males and females, as per the analysis.

A one-way ANOVA test compared three different age groups on self-efficacy. The test revealed a not statistically significant difference in self-efficacy and age groups (*p* = 0.716), as found in table below.

Table 4
Self-efficacy between different age groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.386	2	.193	.330	.719
Within Groups	89.007	152	.586		
Total	89.394	154			

Is there any difference on self-efficacy between diploma and degree students?

A T-test was conducted to determine any difference in self-efficacy between diploma and degree students. The table below shows the mean of self-efficacy in different education levels.

Table 5
Self-efficacy between different education levels

	Education Level	N	Mean	Std. Deviation	Std. Error Mean
Self-efficacy	Diploma	65	4.4769	.70948	.08800
	Degree	89	4.3820	.76136	.08070

According to Table 5, the mean self-efficacy is 4.4769 ± 0.70948 for diploma students. However, the mean self-efficacy in degree students is lower, which is 4.3820 ± 0.76136 . The outcome can be examined through an independent T-test for further analysis as in table below.

Table 6

The independent T-test result

		Levene's Test for Equality of Variances		t-test for Equality of Means		Significance	
		F	Sig.	t	df	One-Sided <i>p</i>	Two-Sided <i>p</i>
Self_efficacy	Equal variances assumed	.803	.372	.786	152	.217	.234
	Equal variances not assumed			.795	143.238	.214	.428

According to Table 6, the *p*-value for Levene's test is 0.372, indicating that it is not statistically significant. Therefore, we accept the null hypothesis of Levene's test, suggesting that the variance in self-efficacy between diploma and degree students is similar. When assuming equal variances, the mean difference is 0.09490, obtained by subtracting the mean of the diploma students (4.4769) from that of the degree students (4.3820). The positive *t* value suggests that the mean self-efficacy in diploma students is higher than in degree students. However, the *p*-value (0.433) is not statistically significant, and the 95% confidence interval [-0.14363, 0.33343] includes both negative and positive values, supporting the insignificance of the results. In summary, there is no substantial difference in self-efficacy between diploma and degree students. Additionally, none of the demographic factors show an association with self-efficacy. A correlation test can be used to determine if there is any association between self-efficacy and learning motivation, towards the acceptance of E-Learning among TVE students. Table below shows the correlation table between the factors.

Table 7

The correlation between self-efficacy and learning motivation, towards the acceptance of E-Learning

		Motivation	Self-efficacy	Acceptance
Motivation	Pearson Correlation	1	.768**	.828**
	Sig. (2-tailed)		<.001	<.001
	N	155	155	155
Self-efficacy	Pearson Correlation	.768**	1	.807**
	Sig. (2-tailed)	<.001		<.001
	N	155	155	155
Acceptance	Pearson Correlation	.828**	.807**	1
	Sig. (2-tailed)	<.001	<.001	
	N	155	155	155

** . Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation value above can be interpreted using the information in Table 8.

Table 8

The Pearson correlation value interpretation

Coefficient Interval	Interpretation
0.90 to 1.00 (-0.90 to -1.00)	Very high positive (negative) correlation
0.70 to 0.90 (-0.70 to -0.90)	High positive (negative) correlation
0.50 to 0.70 (-0.50 to -0.70)	Moderate (negative) positive correlation
0.30 to 0.50 (-0.30 to -0.50)	Low positive (negative) correlation
0.00 to 0.30	Negligible correlation

Table 8 presents a comprehensive analysis of the correlation between self-efficacy and learning motivation toward the acceptance of E-Learning among TVET students. The first property examined is motivation, which indicates a statistically significant correlation with the acceptance of E-Learning, as the p -value is less than 0.001. In addition, the coefficient associated with this correlation is 0.828, indicating that the observed relationship has a high positive effect size. In simpler terms, there is a high association between the motivation and the acceptance of E-Learning in which higher motivation highly results in higher acceptance of E-Learning.

The second property examined is self-efficacy, which indicates a statistically significant correlation with the acceptance of E-Learning, as the p -value is less than 0.001. In addition, the coefficient associated with this correlation is 0.807, indicating that the observed relationship has a high positive effect size. In simpler terms, there is a high association between the self-efficacy and the acceptance of E-Learning in which higher self-efficacy highly results in higher acceptance of E-Learning. Therefore, it can be concluded that both independent variables from this study highly associated with the dependent variable.

Discussion

Based on the findings it can be understood that both self-efficacy and learning motivation demonstrated a high positive correlation with the acceptance of E-Learning. The correlation coefficient for motivation and self-efficacy with acceptance is very high and positive, indicating a robust relationship between these variables. The p -value for all three variables is less than 0.001, suggesting that this association is statistically significant. The practical implication of these results is that higher motivation and self-efficacy levels are strongly associated with increased acceptance of E-Learning. This implies that students with higher levels of self-efficacy and motivation are more likely to embrace and accept E-Learning methods. The interpretation aligns with established psychological theory, such as Bandura's Social Cognitive Theory Bandura (1977) which emphasizes the role of self-efficacy in shaping individuals' behaviours and attitudes. In the context of the Technology Acceptance Model (TAM), Higher levels of motivation and self-efficacy contribute to a positive attitude toward E-Learning, reflecting the perceived usefulness of the technology. The robust positive correlation indicates that when individuals perceive E-Learning as beneficial (usefulness), they are more likely to accept and embrace it. Students' use and acceptance of online learning due to COVID-19 and found that self-efficacy affected learners' effective use of online tools for learning, contributing to their willingness to continue online learning (Aguilera-Hermida et al., 2021). Moreover, the correlation identified between learning motivation and E-Learning acceptance resonates with UTAUT's emphasis on the social influence construct. In accordance

with UTAUT, positive attitudes and encouragement originating from peers or educators play a pivotal role in shaping individuals' acceptance of technology, underscoring the significance of motivational factors in the adoption of E-Learning. Motivational factors, and competence in the use of an e-learning system are also important factors in the adoption of E-Learning (Almas et al., 2021). Therefore, educators and institutions should focus on strategies to enhance student motivation and self-efficacy to foster a more positive attitude towards E-Learning. The analysis yields valuable insights; however, it is crucial to recognize certain limitations. The study may not have accounted for all potential influencing factors, and the sample size might impact the generalizability of the findings. Future research endeavours could delve into additional variables that might influence self-efficacy, such as individuals' prior experiences with technology or specific learning styles.

Conclusion

The conclusion is anchored in the cumulative evidence obtained from the correlations, signifying the crucial roles played by both motivation and self-efficacy in shaping the acceptance of E-Learning among TVET students. The substantial statistical significance and elevated effect sizes emphasize the necessity of addressing these psychological factors in the development and execution of educational strategies involving E-Learning platforms. Interestingly, the correlation analysis between self-efficacy and learning motivation toward the acceptance of E-Learning among TVET students revealed highly significant and positive correlations. Both motivation and self-efficacy demonstrated strong associations with the acceptance of E-Learning. Higher levels of motivation and self-efficacy were found to be linked with greater acceptance of E-Learning, emphasizing the importance of these psychological factors in the context of technology-enhanced learning. The findings underscore the significance of considering motivational and self-efficacy interventions, reflecting their pivotal roles in fostering a positive and receptive learning environment within the TVET context. This research contributes valuable insights to the broader discourse on technology-enhanced education, advocating for a nuanced understanding and deliberate incorporation of these psychological determinants in educational interventions for TVET students in the digital era.

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