Understanding Students' Engagement with Video-Based Lectures: The Role of TAM and Prior Exposure

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ABSTRACT

This study investigates the factors influencing the actual usage of video-based lectures among public university students in Malaysia, specifically focusing on students from Universiti Teknologi MARA (a large Malaysian public university). The study examines three key factors: perceived usefulness, perceived ease of use, and prior exposure. A total of 111 students from a large Malaysian public university participated in the study, and data were collected using a structured survey. The responses were analysed using structural equation modelling to assess both the measurement and structural models. The results indicate that perceived ease of use and prior exposure significantly influence students' actual usage of video-based lectures, while perceived usefulness does not show a statistically significant effect. These findings suggest that user-friendliness and previous experience with the platform are more critical determinants of engagement than perceived benefits alone. The study emphasizes the importance for higher education institutions to design accessible, intuitive platforms and provide early exposure to digital learning tools. However, the study is subject to certain limitations, including its reliance on self-reported data, a cross-sectional design, and a sample drawn from a single public university, which may limit the generalizability of the results. Future research should consider additional variables such as motivation, digital readiness, or institutional support, and adopt longitudinal or mixed-method approaches for deeper insights. Overall, this study contributes valuable understanding toward enhancing student engagement with video-based learning in Malaysian higher education.

Keywords: Actual Usage Video-Based Lectures, Perceived Usefulness, Perceived Ease of Use, Prior Exposure

INTRODUCTION

The rapid advancement of digital technologies has significantly reshaped higher education, especially in how teaching and learning are delivered. Among these innovations, video-based lectures have emerged as a central tool due to their flexibility, scalability, and ability to engage learners more effectively than traditional methods (Khomyshak, 2024). These lectures allow students to access content at their own pace and revisit complex topics, making learning more personalized and accessible. The COVID-19 pandemic further accelerated the adoption of such technologies, compelling institutions to adopt online learning on a wide scale (Modise, & Van den Berg, 2021). This shift not only ensured continuity during the crisis but also demonstrated the long-term potential of video-based learning in enhancing academic delivery and outcomes (Alkhnbashi, Mohammad, & Bamasoud, 2024).

As universities continue transitioning toward hybrid and fully online models, understanding the factors that influence students' actual usage of video-based lectures has become increasingly important (Wang, et al., 2022). It is no longer sufficient to merely provide digital content; institutions must ensure that students are motivated, supported, and equipped to engage meaningfully with these resources. According to Pal and Patra (2021), variables such as perceived usefulness, ease of use, digital skills, content quality, and institutional support play vital roles in determining engagement levels. Analyzing these factors is essential for fostering effective learning experiences and sustained student involvement, ultimately contributing to the success and sustainability of modern digital education (Lasekan, 2024).

Numerous studies have adopted the Technology Acceptance Model (TAM) to examine users' behavioural intentions toward new educational technologies, highlighting constructs such as perceived usefulness and perceived ease of use as primary determinants (Mastour, Yousefi, & Niroumand, 2025; Punnoose, 2012; Park, 2009). In addition to these well-established factors, prior exposure to technology has also been identified as a relevant influence on usage behaviour, especially in technology-enhanced learning environments. While these factors have been widely studied in various e-learning contexts, their specific impact on video-based lecture usage among Malaysian public university students remains underexplored. It is crucial to assess whether students' familiarity with such tools, as well as their perceived functionality and usability, affect their actual engagement with video-based learning materials. This study explicitly adopts TAM as the main theoretical framework explaining technology adoption in educational settings.

Therefore, this study aims to investigate the key factors influencing the actual usage of video-based lectures among students at Universiti Teknologi MARA (a large Malaysian public university), a major public university in Malaysia. Specifically, the study evaluates the influence of perceived usefulness, perceived ease of use, and prior exposure on actual usage video-based lectures behaviour. By employing a quantitative approach using structural equation modelling (SEM) on data collected from 111 students, this research seeks to provide insights for educators and policymakers on how to design and implement more effective video-based learning strategies. The findings are expected to inform future efforts in enhancing student engagement and learning effectiveness through digital platforms in the Malaysian higher education context.

The remainder of the paper is presented as follows. The next section presents a comprehensive review of the relevant literature, focusing on the TAM factors and prior exposure in the context of video-based learning. The third section outlines the research methodology, including the sample, instrument, and data analysis techniques. This is followed by the fourth section, which discusses the findings and empirical results derived from PLS-SEM. The final section concludes the study, highlighting the key findings, practical implications, limitations, and directions for future research.

LITERATURE REVIEW & HYPOTHESES DEVELOPMENT

Perceived Usefulness (PU) and Actual Usage Video-Based Lectures

Perceived Usefulness (PU), as defined by Davis (1989), is the extent to which an individual believes that using a specific technology will enhance their performance or productivity. In educational settings particularly within video-based learning environments, PU pertains to students' perception that video lectures can improve their comprehension, streamline their study processes, and ultimately enhance their academic performance. For instance, students who find that video content allows them to revisit complex topics, learn at their own pace, or better prepare for assessments are more likely to consider such tools valuable. This belief that technology contributes directly to learning outcomes plays a crucial role in shaping students' attitudes toward digital tools.

Extensive research has validated PU as a strong predictor of technology acceptance and usage behaviour in e-learning contexts (Venkatesh & Davis, 2000; Abdullah & Ward, 2016). When students perceive that video-based lectures support their academic goals by making learning more flexible, personalized, or effective they are more inclined to adopt and regularly use these tools. This relationship suggests that enhancing the perceived value of video lectures through thoughtful design, relevant content, and user-friendly platforms can significantly boost

student engagement. Consequently, higher levels of perceived usefulness are likely to result in increased actual usage, highlighting the importance of aligning educational technology with students' learning needs and expectations.

H1: Perceived usefulness has a positive effect on the actual usage of video-based lectures.

Perceived Ease of Use (PEU) and Actual Usage of Video-Based Lectures

Perceived Ease of Use (PEU), as defined by Davis (1989), refers to the degree to which a user believes that utilizing a particular system will require minimal physical or mental effort. Within the realm of educational technology, especially video-based learning platforms, PEU is a critical factor influencing students' willingness to engage with digital tools. When students find a platform intuitive, easy to navigate, and free from technical complications, they are more likely to adopt and continue using it as part of their learning process. In contrast, systems that are overly complex, have poor user interfaces, or require advanced technical skills can become obstacles to engagement, regardless of the potential educational value they offer (Šumak et al., 2011). This is especially important in university settings, where students' levels of digital proficiency can vary significantly.

According to the TAM, PEU not only has a direct effect on users' behavioural intentions but also influences perceived usefulness (PU), thereby exerting an indirect effect on actual usage (Venkatesh & Bala, 2008). For example, a student who finds a video-based learning platform easy to use is more likely to view it as useful, since it doesn't add stress or require excessive effort to access learning materials. In the context of this study, where students may be managing multiple courses and varying workloads, ease of use becomes a key enabler of technology adoption. Platforms that minimize cognitive load and offer seamless interaction through features like simple navigation menus, responsive playback, and mobile accessibility can significantly improve student acceptance and regular usage of video-based lectures, ultimately contributing to better learning outcomes.

H2: Perceived ease of use has a positive effect on the actual usage of video-based lectures.

Prior exposure (PEXP) and Actual Usage Video-Based Lectures

Prior Exposure (PEXP) refers to the extent of students' previous interactions with video-based learning tools, whether through formal academic settings, online courses, or informal self-directed learning experiences. Grounded in Kolb's Experiential Learning Theory (Kolb, Boyatzis, & Mainemelis, 2014), prior experience plays a critical role in shaping present behaviour by fostering familiarity, enhancing self-efficacy, and reducing anxiety. When students have had successful encounters with video-based platforms in the past, such as using recorded lectures, tutorials, or educational YouTube content, they tend to feel more confident and capable in navigating similar tools in future learning situations (Khomyshak, 2024). This sense of familiarity not only boosts their willingness to adopt video-based lectures but also makes them more efficient and comfortable in utilizing these resources, leading to more frequent and habitual use.

Research further supports this link between prior exposure and technology adoption. Studies like those by Lee, Hsieh and Hsu (2011) indicate that familiarity with digital systems reduces uncertainty, improves task performance, and enhances the overall user experience. When learners associate video-based tools with past successes such as clearer understanding of content or improved grades, they are more likely to carry positive attitudes into new learning environments. This continuity in user behaviour strengthens the likelihood of consistent usage and deeper integration of video-based lectures into their academic routines (Giannakos, Jaccheri, & Krogstie, 2016). Therefore, students who have had more exposure to video-based learning are not only more comfortable using such tools but are also more likely to perceive them as effective and beneficial, which contributes to greater actual usage.

H3: Prior exposure has a positive effect on the actual usage of video-based lectures.

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Overall, the conceptual framework of the determinants of actual usage in relation to video-based lectures is as shown in Figure 1.

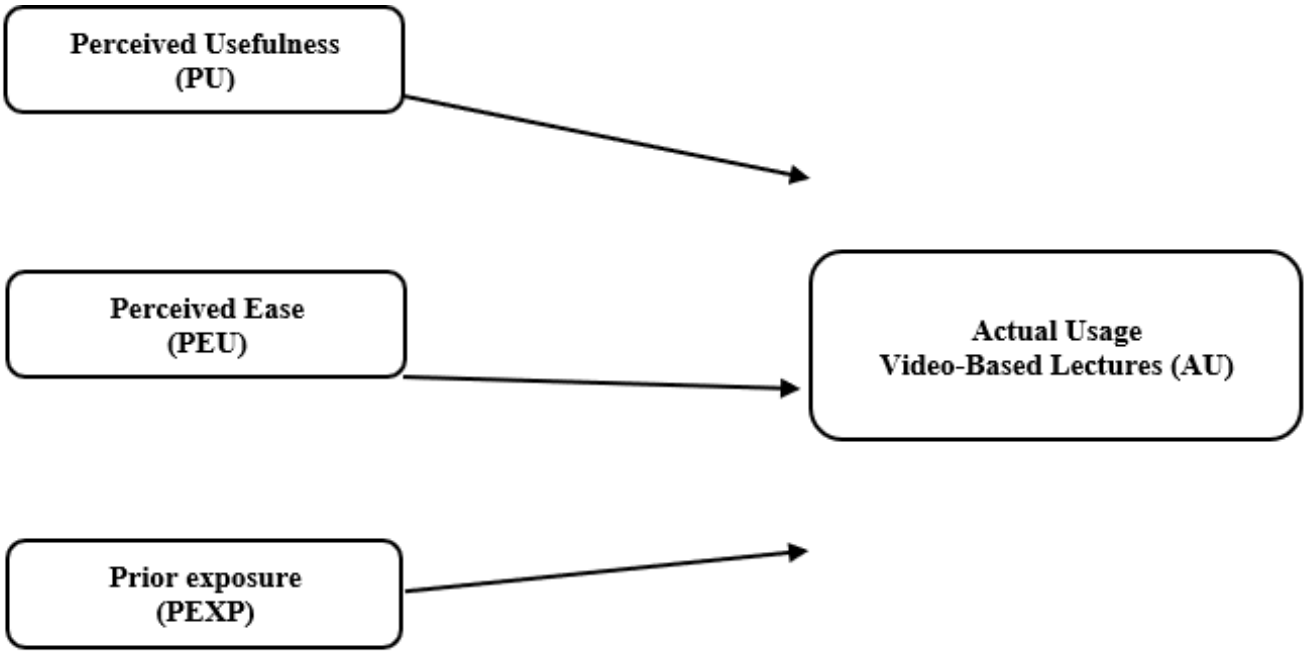

Figure 1: Conceptual Framework

METHODS

Sample

Data for this study were collected through a structured questionnaire designed to examine the influence of TAM factors and prior exposure on students' actual usage of video-based lectures. The survey was administered in person to undergraduate accounting students at a public university in Malaysia during the second semester of the 2024 academic year. To encourage voluntary participation and ensure candid responses, students were assured that their participation was confidential, and that the data collected would be used exclusively for academic research purposes. A total of 111 valid responses were obtained and used for subsequent analysis.

The questionnaire comprised two main sections: demographic information and constructs related to the antecedents of actual usage of video-based lectures. The first section gathered demographic data about the respondents, while the second focused on measuring perceptions related to TAM variables and prior exposure. Responses were recorded using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The measurement items for Perceived Ease of Use, Perceived Usefulness, and Prior Exposure were adapted from the validated instrument developed by Pal and Patra (2021).

RESULTS AND DISCUSSION

Descriptive analysis

The respondents were all accounting students from a public university, Universiti Teknologi MARA (a large Malaysian public university) Perak, Tapah Branch, Malaysia. The sample consisted of 34 (30.63%) male and 77 (69.37%) female accounting students.

Assessment of the Measurement Model

Table 1 provides a detailed assessment of the measurement model, demonstrating that all constructs meet the necessary criteria for reliability and validity. For Actual Usage of Video-Based Lecture, the two items (AU1 and AU2) have very high factor loadings of 0.948 and 0.956, indicating that both items strongly represent the

construct. The Cronbach's alpha value of 0.897 and composite reliability (CR) of 0.951 reflect excellent internal consistency, while the AVE value of 0.906 shows that the construct explains a very high proportion of the variance in its indicators. Perceived Ease of Use is measured by five items with loadings ranging from 0.828 to 0.908, all above the recommended threshold of 0.70, suggesting good item reliability. The Cronbach's alpha of 0.913 and CR of 0.935 further confirm the internal consistency of this construct, and the AVE of 0.743 indicates sufficient convergent validity. Prior Exposure is measured through three items, each with strong loadings (0.867 to 0.878), a Cronbach's alpha of 0.855, CR of 0.906, and AVE of 0.764-all of which meet the standard benchmarks. Lastly, Perceived Usefulness includes four items with loadings from 0.813 to 0.864, and it also shows strong internal consistency ($\alpha = 0.910$; CR = 0.932) and acceptable convergent validity (AVE = 0.734). Overall, the consistently high values for loadings, reliability (Cronbach's alpha and CR), and validity (AVE) across all constructs confirm that the measurement model is statistically sound and suitable for further structural equation modelling.

Table 2 assesses the discriminant validity of the measurement model using the Fornell and Larcker criterion, which ensures that each construct is statistically distinct from the others. According to this method, discriminant validity is confirmed when the square root of the Average Variance Extracted (AVE) for each construct (shown on the diagonal in bold) is greater than the correlation coefficients between that construct and all other constructs (off-diagonal values in the same row or column). Looking at the table, the square root of AVE for Actual Usage of Video-Based Lecture is 0.952, which is higher than its correlations with Perceived Ease of Use (0.741), Perceived Usefulness (0.694), and Prior Exposure (0.362). This indicates that Actual Usage is more closely associated with its own measurement items than with other constructs, demonstrating adequate discriminant validity. Similarly, Perceived Ease of Use has a square root of AVE of 0.862, which is greater than its correlations with Actual Usage (0.741), Perceived Usefulness (0.810), and Prior Exposure (0.286). Although the correlation with Perceived Usefulness is relatively high (0.810), it still does not exceed the square root of AVE, meaning the construct is statistically distinct.

Table 1: The Measurement Model Assessment

Constructs	Measurement items	Loadings	Cronbach's α	CR	AVE
Actual Usage Video-Based Lecture	AU1	0.948	0.897	0.951	0.906
	AU2	0.956			
Perceived Ease of Use	PEU1	0.828	0.913	0.935	0.743
	PEU2	0.833			
	PEU3	0.872			
	PEU4	0.865			
	PEU5	0.908			
Prior Exposure	PEXP1	0.877	0.855	0.906	0.764
	PEXP2	0.878			
	PEXP3	0.867			
Perceived Usefulness	PU1	0.857	0.91	0.932	0.734
	PU2	0.813			
	PU3	0.84			
	PU4	0.864			

Table 2: Discriminant Validity of Measurement Model Using Fornell and Larcker

Constructs	Actual Usage Video-Based Lecture	Perceived Ease of Use	Prior Exposure	Perceived Usefulness
Actual Usage Video-Based Lecture	0.952			
Perceived Ease of Use	0.741	0.862		
Perceived Usefulness	0.694	0.81	0.857	
Prior Exposure	0.362	0.286	0.254	0.874

Assessment of the Structural Model

Table 3 presents the results of the structural model assessment and hypothesis testing, showing the relationships between independent variables (Perceived Usefulness, Perceived Ease of Use, and Prior Exposure) and the dependent variable (Actual Usage of Video-Based Lecture). The strength and significance of each hypothesized relationship are assessed using beta coefficients (β), standard deviations, t-values, and p-values. For Hypothesis H1, the relationship between Perceived Usefulness and Actual Usage has a beta coefficient of 0.263, with a t-value of 1.937 and a p-value of 0.053. Since the p-value slightly exceeds the conventional significance threshold of 0.05, this hypothesis is rejected, indicating that Perceived Usefulness does not have a statistically significant impact on the actual usage of video-based lectures in this context. Hypothesis H2, which examines the effect of Perceived Ease of Use on Actual Usage, is supported. The beta value is 0.483, indicating a strong positive relationship. The t-value is 4.209 and the p-value is 0.000, which is highly significant ($p < 0.001$), suggesting that when students perceive the system as easy to use, they are more likely to engage with video-based lectures. For Hypothesis H3, the influence of Prior Exposure on Actual Usage is also supported, with a beta value of 0.157, a t-value of 2.606, and a p-value of 0.009. These values show a statistically significant, though weaker, positive relationship. This implies that students who have had prior experience with similar learning platforms are more likely to use video-based lectures. The results reveal that Perceived Ease of Use and Prior Exposure significantly influence students' actual usage of video-based lectures, while Perceived Usefulness, although positively related, does not show a statistically significant effect in this study. This finding suggests that the path model, as shown in Figure 2, effectively predicts the actual usage of video-based lectures based on students' perceptions and prior exposure.

Table 4 presents the R^2 and f^2 values, which assess the explanatory power and effect size of the structural model. The R^2 value for Actual Usage of Video-Based Lecture is 0.598, indicating that 59.8% of the variance in actual usage is explained by Perceived Ease of Use, Perceived Usefulness, and Prior Exposure. This reflects a substantial level of predictive power according to Cohen's (1988) guidelines. As regards the effect size, f^2, this represents the value of R^2 that is changed when a specific construct is omitted from the model. Following Cohen (1988), the impact of the effect size was judged to be small if the value of f^2, was 0.02, medium if it was 0.15 and large if it was 0.35. In terms of effect size (f^2), Perceived Ease of Use has a medium effect (0.196), showing it is the most influential predictor of actual usage. Perceived Usefulness (0.059) and Prior Exposure (0.056) both have small effect sizes, indicating they contribute positively but to a lesser extent. Overall, the model demonstrates strong explanatory capability, with Perceived Ease of Use playing a central role in influencing students' engagement with video-based lectures.

Table 3: Structural Model Assessment and Hypothesis Testing

Hypothesis	Relationship	Beta	Std Deviation	t value	p value	Decision
H1	Perceived Usefulness -> Actual Usage Video-based Lecture	0.263	0.136	1.937	0.053	Rejected
H2	Perceived Ease of Use -> Actual Usage Video-based Lecture	0.483	0.115	4.209	0	Supported
H3	Prior Exposure -> Actual Usage Video-based Lecture	0.157	0.06	2.606	0.009	Supported

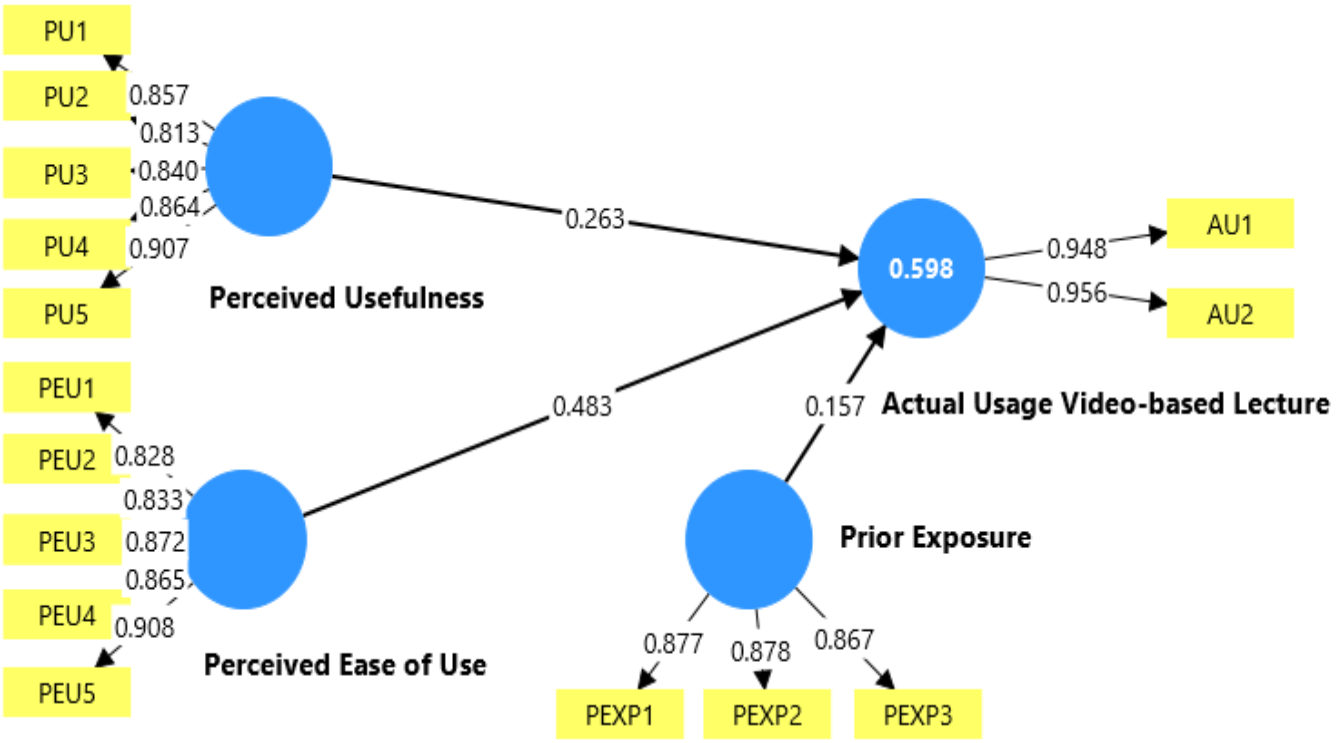

Figure 2: Path Model

Table 4: Result of R^2 and f^2

Construct	R^2	f^2	Decision
Actual Usage Video-based Lecture	0.598		
Perceived Ease of Use		0.196	Medium
Perceived Usefulness		0.059	Small
Prior Exposure		0.056	Small

DISCUSSION

The findings presented in Table 4 offer valuable insights into the behavioural factors influencing students' actual usage of video-based lectures. Notably, the relationship between perceived usefulness (PU) and actual usage was found to be statistically insignificant, resulting in the rejection of Hypothesis H1. This implies that even though students may acknowledge the academic benefits of video lectures such as improved understanding and flexibility, this belief alone does not necessarily lead to consistent use. It suggests that other factors might be more critical in converting positive perceptions into actual behavioural engagement. This outcome challenges common assumptions in the TAM, where PU is often regarded as a primary driver of technology adoption, and underscores the complexity of learning behaviour in digital environments.

In contrast, both Hypothesis H2 and H3 were supported, reinforcing the importance of perceived ease of use (PEU) and prior exposure (PEXP) in promoting actual usage. The significance of PEU indicates that students are more likely to adopt video-based platforms when they find them intuitive, accessible, and free from technical barriers (Pal & Patra, 2021) This aligns with existing literature emphasizing user experience as a decisive factor in technology adoption. Additionally, the strong influence of prior exposure confirms that students who have previously used similar platforms are more comfortable and confident, making them more inclined to continue using video-based lectures. Together, these findings reveal that usability and familiarity are stronger predictors of actual use than mere perceived usefulness. For educators and institutions aiming to increase engagement with video-based learning, these results suggest a greater emphasis should be placed on user-friendly design and providing early exposure or training to build confidence and familiarity (Dushyanthen, et al., 2025).

CONCLUSION

This study explored the factors influencing the actual usage of video-based lectures among accounting students at a large Malaysian public university in Malaysia. Grounded in the Technology Acceptance Model (TAM), the study examined three key variables: perceived usefulness, perceived ease of use, and prior exposure (Nguyen, 2020). Based on responses from 111 undergraduate accounting students, the structural model analysis revealed that perceived ease of use and prior exposure significantly predicted students' actual usage of video-based lectures. These findings suggest that students are more inclined to engage with video-based content when the platforms are easy to navigate and when they have had previous exposure to such learning tools.

Interestingly, perceived usefulness, despite being a central factor in TAM, did not significantly affect actual usage (Bakı, Bırgoren, & Aktepe, 2018). This finding is theoretically noteworthy because TAM traditionally identifies perceived usefulness as a major determinant of technology adoption. One possible explanation is that students may already perceive video-based lectures as a common and essential component of modern learning environments, thereby reducing the direct influence of usefulness perceptions on actual behaviour. In addition, students may prioritize usability and familiarity with the platform over functional benefits when deciding whether to engage with video-based lectures (Pal & Patra, 2021).

While the study provides valuable insights into student engagement with video-based learning in a public university context, several limitations must be acknowledged. First, the study was limited to accounting students from a single institution, which may restrict the generalizability of the findings to other academic disciplines and educational settings. Second, the cross-sectional design limits the ability to observe behavioural changes over time and restricts causal interpretation. Third, the study relied solely on self-reported data, which may introduce response bias or inaccurate self-assessment.

To build upon these findings, future research should consider expanding the sample to include students from multiple faculties and higher education institutions across Malaysia to enhance generalizability. Furthermore, future studies are encouraged to incorporate additional variables such as motivation, digital readiness, institutional support, and learning satisfaction to provide a more comprehensive understanding of students' engagement with video-based learning. Longitudinal or mixed-method approaches may also offer deeper insights into students' behavioural changes and learning experiences over time.

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