

Investigating The Factors Influencing User Acceptance and Attitude towards Technology Usage in Online Learning

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Abstract

The COVID-19 pandemic has accelerated the adoption of technology in Malaysian education, although many students, particularly accounting students, still prefer traditional methods. The sudden shift to online learning poses challenges for accounting students who favor face-to-face classes and have limited IT knowledge. Poor internet coverage in rural areas further complicates online learning. To address these issues, the study emphasizes the importance of infrastructure support and digital skill development. The research at UiTM aims to understand factors influencing accounting students' acceptance and attitudes toward technology use in online learning. A survey involving 402 respondents examined performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). Only two out of five hypotheses were significant: PE and FC. Moderation tests for attitude, gender, and age did not show significant results, indicating no moderation effects. The analysis revealed that only PE and FC had significant effects among the independent variables, while EE and SI showed insignificant relationships with behavioral intention. Moderating effects of attitude, gender, and age were inconsistent, with attitude moderating FC and EE on behavioral intention, and gender and age moderating only FC. PE and SI did not significantly moderate behavioral intention. The study suggests potential impacts on Malaysian institutions and accounting students, encouraging active use of online learning post-COVID-19.

Keywords: Acceptance of Technology, Accounting Student, Learning Approach, Technology Usage

Introduction

The COVID-19 pandemic, originating in Wuhan in December 2019, prompted the global adoption of technology in education. Despite the shift to online learning, challenges emerged for accounting students who prefer traditional methods, facing issues such as limited IT

knowledge and poor internet coverage in rural areas. The Malaysian government implemented the Movement Control Order (MCO), affecting education. Online learning in higher education has advantages, allowing flexibility for students (Mokhtar & Karim, 2021). However, challenges include technology-related difficulties and negative student behavior (Ajmal et al., 2019; Hanapiah, 2020; Robeiro, 2020). Challenges extend beyond technical issues, with reported incidents of students risking safety for internet access (Mansour, 2020; Chen, 2020). Privilege disparities in facilities and support also impact online learning benefits (Rahman, 2020).

With the COVID-19 pandemic, it has become more apparent that the education system is susceptible to external dangers (Bozkurt & Sharma, 2020). Ribeiro (2020) noted that this new instructional delivery had several challenges and attitudinal modifications. Addressing the extent of challenges that students experience in online learning, particularly within the context of the pandemic, few studies have highlighted the importance of identifying students' acceptance and readiness for online learning (Ngampornchai & Adams, 2016). However, a limited published study examines the acceptance of online learning among accounting students and the moderating effect of attitude, age and gender on the relationship between students' performance expectancy, effort expectancy, social influence, facilitating conditions, and behaviour intention towards technology acceptance.

Amidst these challenges, students express a preference for traditional methods if physical classes resume post-lockdown. The study emphasizes the need to examine students' technology acceptance, considering factors like attitude, age, and gender. Positive attitudes toward online learning correlate with active engagement and enthusiasm (Miller et al., 2023). Age influences familiarity with technology, while gender contributes to varied interaction styles (Badiozaman, 2021; Samir, 2017). The study aims to provide empirical evidence on technology acceptance among accounting students, considering these factors and their moderating effects. The findings aim to inform administrators, instructional designers, and university management for improving teaching and learning approaches, supporting students' online learning needs during and after the pandemic (Ngampornchai & Adams, 2016).

Technology has been a fast-changing tool over the years. Students need to adapt to the changes so that they are not left behind with the evolution of technology. Today, many accounting firms have already shifted to computer digitalization in their business, and obviously, they need to hire the candidate capable of using their system. Accounting students need to have a very high acceptance of technology to secure a job and meet the employability demand. Their acceptance of a new online learning approach ensures they meet the employability standard that demands digital skills from accounting graduates and prepares them to work in a complex and rapidly changing environment. Therefore, this study seeks to uncover how adaptable accounting students are to technology in their education and whether online learning significantly influences their attitudes and acceptance of technology.

Literature Review

Performance Expectancy (PE)

This study at UiTM focuses on validating the UTAUT model, specifically examining Performance Expectancy. Tan (2013); Ale (2013) found positive effects of PE on students'

intention to use e-learning websites and accept ICT in a Nigerian University, respectively. Stressing PE's importance, the study suggests it's crucial for students and institutions in determining effective approaches for implementing and developing online learning. Highlighting the perceived benefits of online learning technologies in enhancing academic performance and communication Michal (2019), the study underscores a positive relationship between PE and students' intention to use online learning. Prior research on higher education students' ICT adoption supports the notion that PE is linked to their behavioral intention to use ICT (Yakubu & Dasuki, 2018; Lwoga et al., 2015; Awwad & Al-Majali, 2015).

Effort Expectancy (EE)

Effort expectancy relates to the ease of using technology, influencing user intention and usage attitudes, particularly among pre-adopters of educational technology (Sumak & Sorgo, 2016) and behavioral intention (Tosuntas, 2014). This connection is crucial, especially in the early stages of implementing fully online learning in Malaysia, where EE plays a vital role in shaping BI toward using technology in education (Shaalan, 2019). Studies also emphasize that EE significantly impacts students' satisfaction (Chen & Yao, 2016). While considerable evidence supports the close relationship between EE and BI, some studies present contrasting views. Sumak (2017) found that a survey in Slovenia did not establish a significant influence of EE on BI in online learning acceptance. Similarly, a study in China and Taiwan on mobile learning usage revealed an insignificant influence of EE on BI (Zhou, 2020).

Social Influence (SI)

The influence of social influence on behavioral intention in online learning has been explored in previous studies. Notably, SI significantly shapes individuals' perceptions of available resources for online learning (Pynoo, 2018). Rahamat, Shah, Din & Aziz (2017) found a positively significant role of SI on BI, with Korean respondents showing a relatively higher impact compared to those in the US. Both educators and students play crucial roles as influential figures in the context of social influence (Alshammari, 2021). This variable signifies how the opinions of individuals within one's social circle can impact the adoption of online learning (Hussin, 2020; Kaliisa, 2019). The importance of SI becomes pronounced during the COVID-19 pandemic, where the motivation from lecturers and classmates is crucial in maintaining a sense of normalcy in online learning (Timmy et al., 2019). However, Saxena (2020) found limited evidence of strong SI influencing users' acceptance of online learning in South Korea, highlighting variations based on country and culture (Mahdi & Waleed, 2019).

Facilitating Conditions (FC)

In the UTAUT theory, facilitating conditions play a significant role in influencing the acceptance of online learning (Venkatesh et al., 2003). FC is particularly beneficial in shaping behavioral intention to accept an online learning system (Mahdi, 2019). In the context of online learning, FC revolves around the accessibility of technical and organizational infrastructure, encompassing elements like training, required infrastructure, and technical support (Decman, 2015). Infrastructure in online learning includes aspects such as human support and organizational and technical assistance (Samat, 2020). While the original UTAUT model by Venkatesh (2003) suggests that FC has a direct relationship with an individual's BI, this relationship is not considered significant. Dwivedi (2011) also notes that FC is the least crucial factor compared to the other three elements of the UTAUT model concerning BI. The higher an individual's belief in having the knowledge and equipment to engage in online

learning, the greater the acceptance (Marko & Kristl, 2017). Despite some variations, the UTAUT model maintains a positive and significant relationship between FC and BI (Venkatesh et al., 2003).

Gender

Research findings on the connection between age and willingness to engage in online learning can vary, depending on specific circumstances, the demographic composition of the study participants, and the research methods used (Yuantong, 2023). According to Hunde et al (2023), age influences how individuals perceive the relevance of online learning to their educational and career goals. Younger learners may see online learning as more immediately relevant, leading to a stronger intention to participate in online courses. The study also reveals that younger students often prefer self-directed, autonomous learning methods that align with online learning. Conversely, older students may have different learning style preferences (Hajure & Abdu, 2020). Various age groups may hold diverse attitudes and expectations regarding online learning, influencing their willingness to participate (Hussein, 2018). Generational factors play a role in shaping these attitudes. In some cases, older individuals may show a heightened willingness to engage in online learning for professional development, especially during career transitions or when looking to enhance their skill set (Li et al., 2021).

Age

Gender significantly influences individuals' readiness for online learning, with younger individuals driven by curiosity for innovative methods, while older ones seek career growth or skills enhancement (Abbad, 2021; Hassan & Bao, 2020). Cultural norms and generational experiences shape attitudes and expectations across age groups (Gunasinghe et al., 2019). Behavioral intention is dynamic, evolving over time, as seen in older individuals adopting new technologies for personal or professional development (Holzweiss et al., 2020). Institutional support is crucial; resources, training, and a positive environment enhance behavioral intention for online learning, transcending age and gender (Ko & Rossen, 2017; Nugroho et al., 2020). Institutions play a vital role in fostering engagement and adoption of online learning technologies.

Attitude

Farahat (2012) defines attitude as a personal characteristic influencing behavioral intention in the context of students' technology acceptance in online learning. This aligns with studies, such as El-Gayar & Moran (2006); Marc et al (2019), emphasizing attitude as a key predictor of behavioral intention. Behavioral intention, influenced by attitude and normative belief, suggests that a positive attitude increases students' willingness to adopt technology (Fishbein & Ajzen, 1975). Moghavvemi (2018) underscores attitude as the strongest moderating variable impacting UTAUT factors related to behavioral intention. Although Venkatesh et al (2003) suggested excluding attitude when considering performance expectancy and effort expectancy, this study highlights attitude as a crucial moderating variable, emphasizing its role in connecting independent and dependent variables (Marc et al., 2019). Jairak, Praneetpolgrang & Mekhabunchakij (2009) observed a positive impact of attitude on behavioral intention with PE and EE, contrasting with Nassoura (2012), who found no such effects, challenging Venkatesh et al.'s (2003) view. Despite discrepancies, including attitude in the model aids in exploring its relationship with UTAUT factors. Nassuora (2012)

suggests that social factors positively influence attitude, with variations attributed to data analysis techniques and cultural differences (Singh & Thomas, 2013).

Research Methodology

This study utilizes a quantitative approach through questionnaires to explore the correlation between independent variables (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) and moderating variables (Attitude) concerning the dependent variable (Behavioral Intention) in the context of technology acceptance in online learning among accounting students. The research employs survey methodology to systematically collect data from a sizable sample of accounting students at UiTM in Malaysia. The Likert-scale questions and other measurement scales in the survey questionnaire aim to assess participants' perceptions, attitudes, and behaviors related to technology acceptance. Statistical techniques will be applied to analyze the collected data, unveiling patterns and relationships between variables. To ensure the study's validity, the sample size, determined based on scientific guidelines, is set at 401 accounting students from UiTM and distributed through a carefully planned survey strategy. The distribution of five times the required number of questionnaires enhances the response rate and contributes to more comprehensive data collection.

Findings

Descriptive analysis

Table 1

Descriptive Analysis

No.	Items	Percentage %
1	Gender	
	Female	59
	Male	41
2	Age	
	18-19	14
	20-22	57
	24-23	25
	25 and above	4
3	Campus	
	Dungun	9
	Kota Kinabalu	5
	Machang	6
	Puncak Alam	50
	Samarahan	10
	Segamat	9
	Sungai Petani	11
4	Current Duration of Study	
	Year 1	3
	Year 2	38
	Year 3	24
	Year 4	34
	Others	1

5	Level of Study	
	Diploma	28
	Degree	72
6	Current CGPA	
	2.5-2.99	5
	3.00-3.49	53
	3.50-4.00	42
7	Location of Hometown	
	Urban	39
	Rural	61
8	Family Income	
	RM1,000 and below	15
	RM1,001-RM2,500	43
	RM2,501-RM5,000	26
	RM5,001 and above	16
9	Gadget used during online learning	Frequency
	Laptop/PC	237
	Smartphone	57
	Tablet/Ipad	68
	Laptop/PC & Tablet/Ipad	133
	Smartphone & Laptop/PC	123
	Smartphone & Laptop/PC & Tablet/Ipad	201
10	Platform for Online Learning	Frequency
	Google Meet	166
	ILearn/uFuture Portal	116
	Telegram	135
	Whatsapp	143
	Zoom	51
	Webex	39
	FB Live	2
	Google Classroom	75
	Microsoft team	36

In this study, table 1 shows that respondents were predominantly female (59%) compared to male respondents (41%). The majority of the respondents were aged between 20 and 22 years (57%), followed by those aged between 23 and 24 years (25%). The respondents were mainly from the Puncak Alam campus (50%), with other campuses having smaller representations. In terms of academic year, most respondents were in their second year (67%), followed by third-year (24%) and fourth-year (9%) students. Bachelor's degree holders comprised the majority of respondents (72%) compared to diploma holders (28%). Concerning Cumulative Grade Point Average (CGPA), the highest percentage of respondents had a CGPA of 3.00-3.49 (53%), followed by 3.50-4.00 (42%) and 2.50-2.99 (5%). In terms of residence, more than half of the respondents were from rural areas (61%) compared to urban areas (39%). The majority of respondents' family income ranged from RM1,001 to RM5,000

(43%), while 26% had an income of RM2,501-RM5,000 per month. About 16% had a family income of RM5,001 and above, and 15% had RM1,000 and below every month.

Respondents preferred laptops or personal computers (237), followed by combinations of smartphones & laptop/PC & tablet/iPad (201). The least preferred gadgets were tablet/iPad or smartphone only (68). For the online learning platforms, Google Meet was the most popular choice (166), followed by Whatsapp (143), Telegram (135), ILearn/uFuture Portal (116), Google Classroom (75), and Zoom (51). Other platforms like Webex and Microsoft Teams had a lower number of users, and FB Live was the least used platform (2). Overall, the study provides insights into the preferences and choices of accounting students in various aspects of online learning during the research period.

Reflective Measurement Analysis

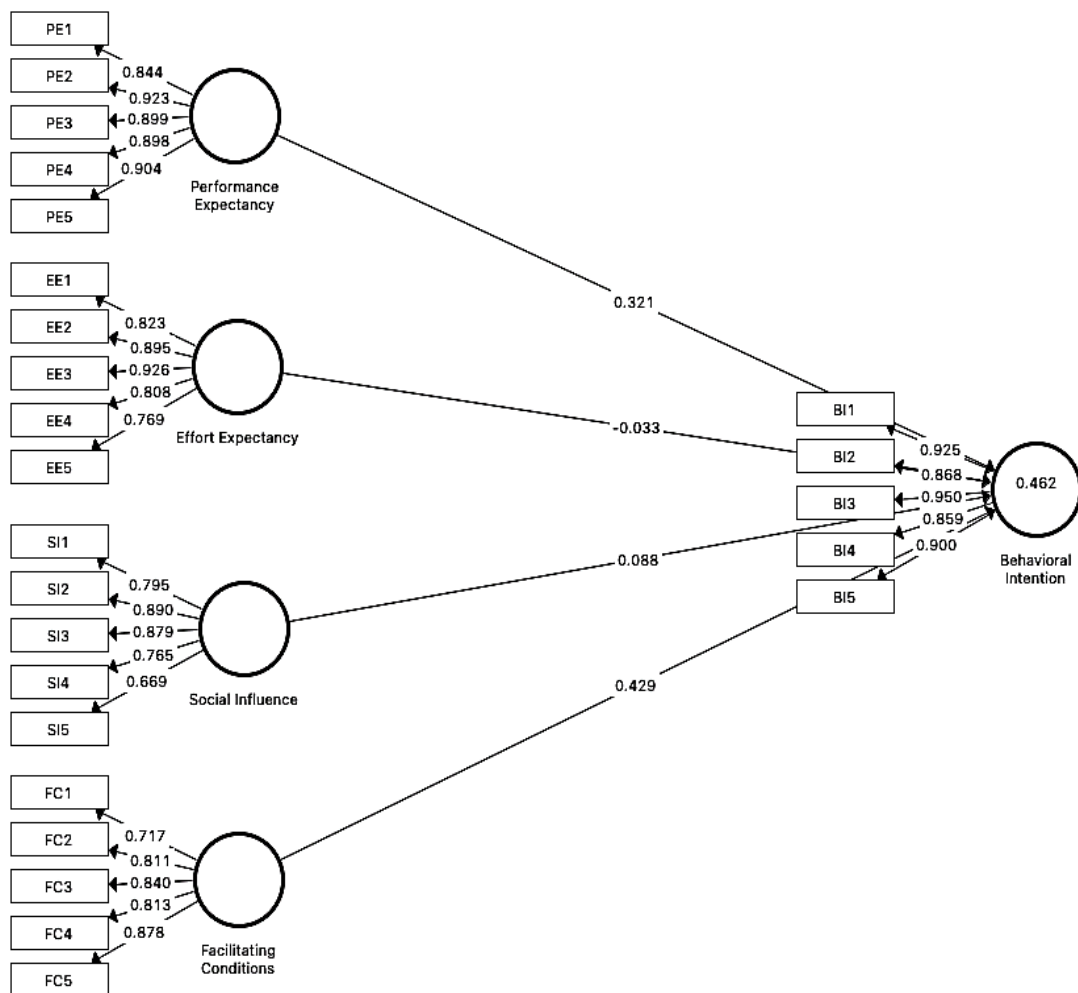


Figure 1 : SmartPLS Analysis for Direct Relationship

Table 2
The Path Coefficients and Model Quality Assessment

Direct Effect	H1: PE->BI	H2: EE->BI	H3: SI->BI	H4: FC->BI
Beta	0.321	0.033	0.088	0.429
S.E.	0.069	0.068	0.068	0.050
t- value	4.670	0.486	1.291	8.651
p- value	0.000	0.314	0.098	0.000
5.00%	0.207	-0.153	-0.027	0.340
95.00%	0.432	0.077	0.196	0.503
f ²	0.057	0.001	0.006	0.234
R ²	0.462			
VIF	3.383	3.439	2.354	1.466
Q ²	0.457			
Decision	Supported	Not Supported	Not Supported	Supported

Structural Measurement Analysis

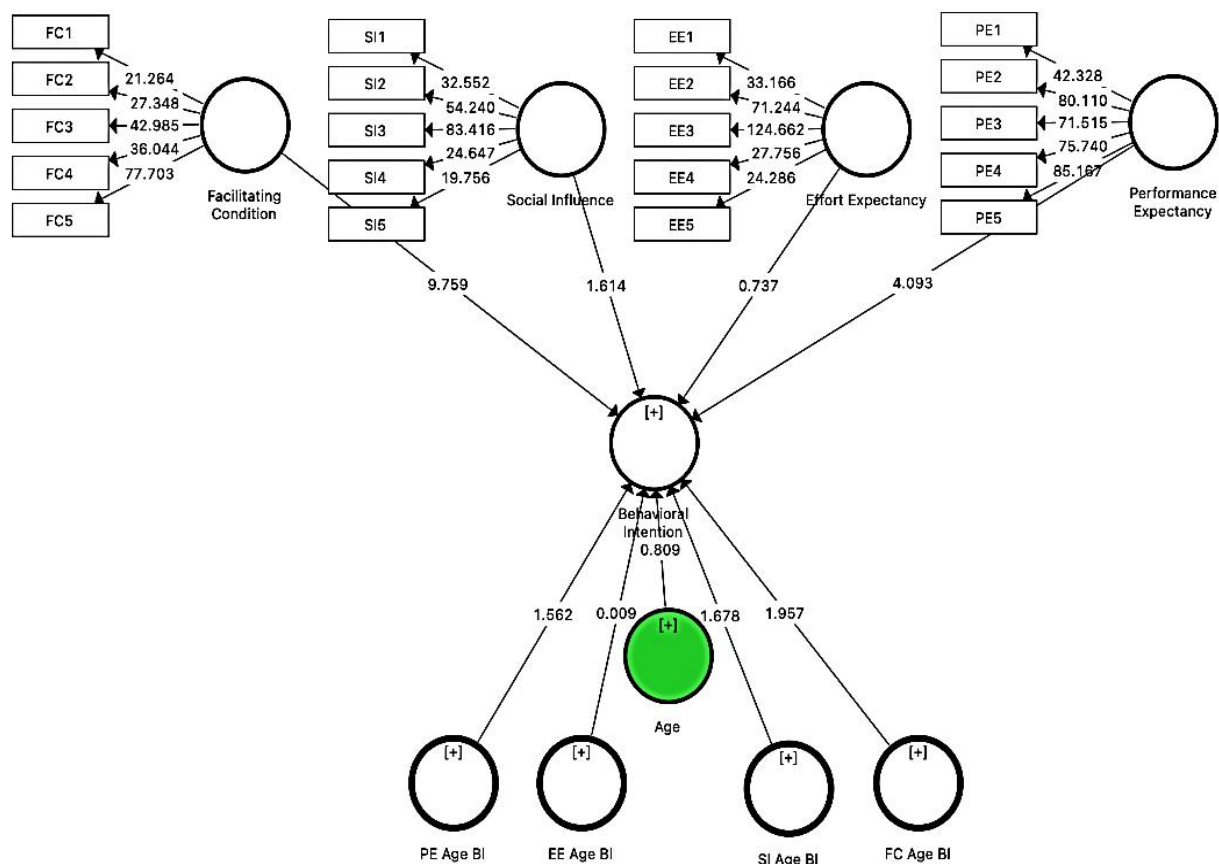


Figure 2 : SmartPLS Analysis of Age

Table 3

Moderation Effect of Age

Indirect Effect	Beta	S.E.	t-value	p-value	5.00%	95.00%	Decision
H5a: EE*Age->BI	-0.001	0.090	0.009	0.993	-0.207	0.154	Not Supported
H5b: FC*Age->BI	0.110	0.056	1.957	0.049	0.003	0.224	Supported
H5c: PE*Age->BI	0.128	0.079	1.582	0.017	-0.034	0.277	Not Supported
H5d: SI*Age->BI	-0.116	0.068	1.678	0.089	-0.263	0.006	Not Supported

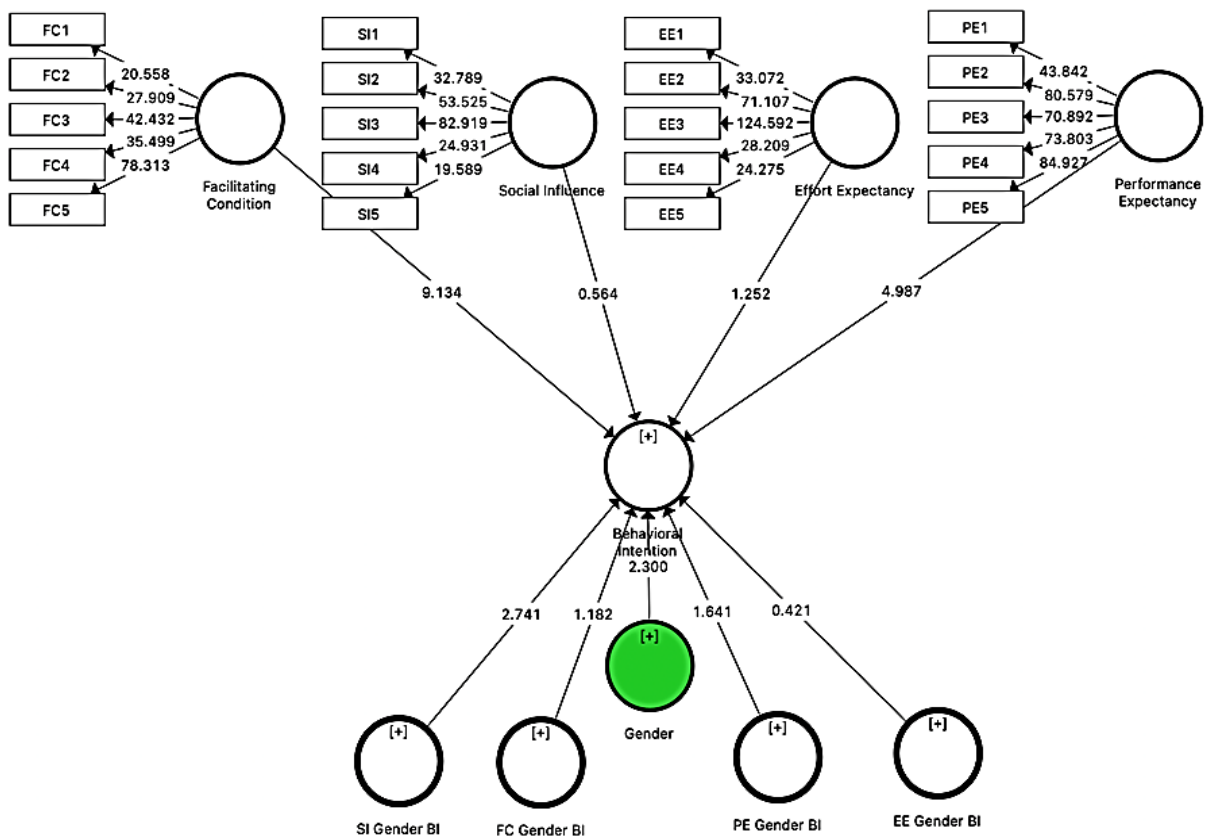


Figure 3 : SmartPLS Analysis of Gender

Table 4

Moderation Effect of Gender

Indirect Effect	Beta	S.E.	t-value	p-value	5.00%	95.00%	Decision
H6a: EE*Gender->BI	-0.034	0.080	0.421	0.673	-0.212	0.170	Not Supported
H6b: FC*Gender->BI	-0.046	0.039	1.182	0.237	-0.131	-0.025	Not Supported
H6c: PE*Gender->BI	-0.207	0.126	1.641	0.101	-0.459	0.034	Not Supported
H6d: SI*Gender->BI	0.186	0.068	2.741	0.006	0.039	0.303	Supported

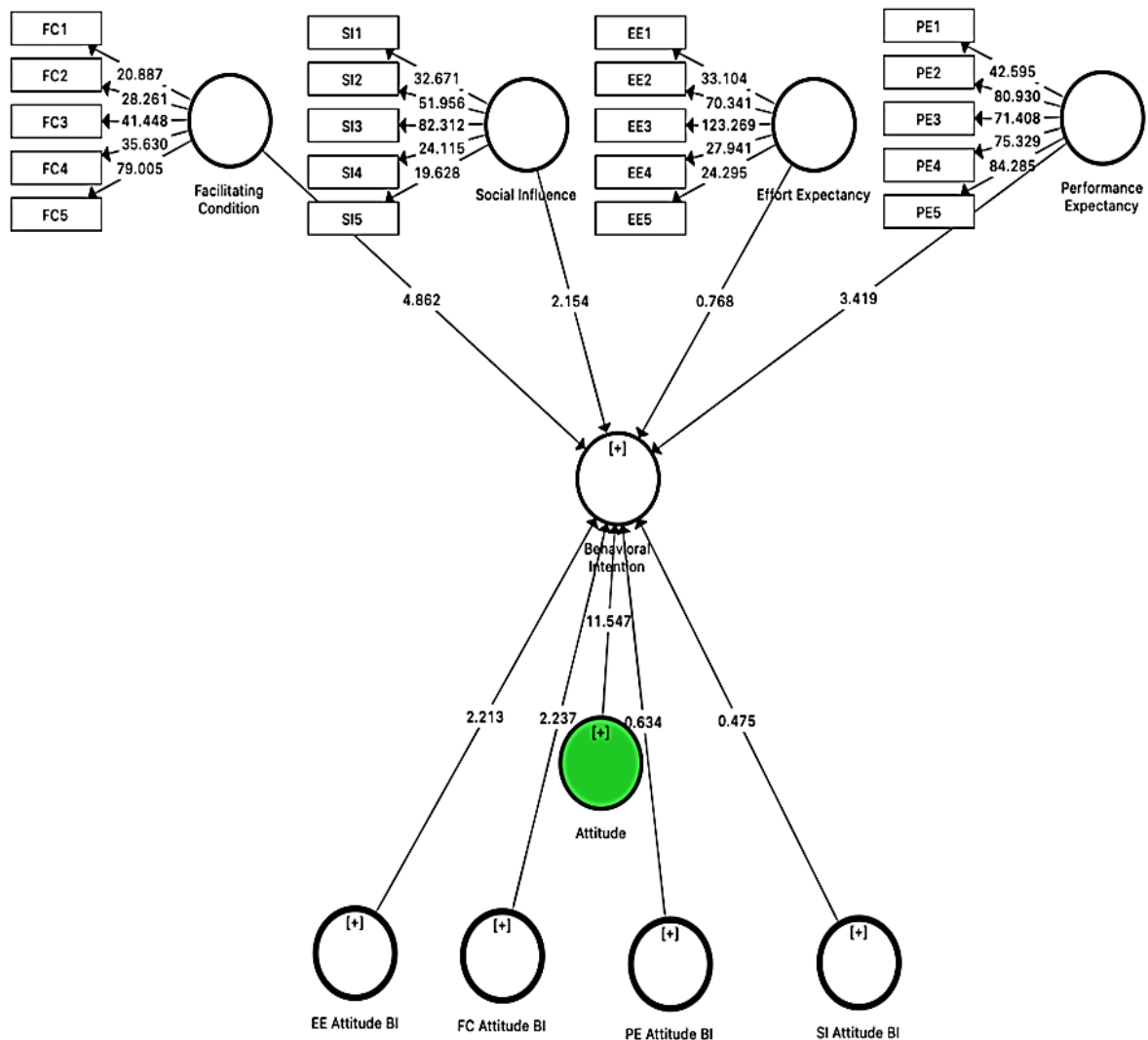


Figure 4 : SmartPLS Analysis of Attitude

Table 5
Moderation Effect of Attitude

Indirect Effect	Beta	S.E.	t-value	p-value	5.00%	95.00%	Decision
H7a:EE*Attitude->BI	0.097	0.044	2.213	0.027	0.012	0.179	Supported
H7b:FC*Attitude->BI	-0.072	0.032	2.237	0.025	-0.135	-0.007	Not Supported
H7c:PE*Attitude->BI	0.040	0.063	0.634	0.526	-0.078	0.168	Not Supported
H7d:SI*Attitude->BI	0.025	0.053	0.475	0.635	-0.066	0.146	Not Supported

Discussion and Conclusion

The study investigates the impact of independent variables (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) on Behavioral Intention in

technology acceptance among accounting students at UiTM. Findings are discussed for each variable:

Performance Expectancy (H1): Supported. Positive attitudes toward technology significantly influence technology acceptance among accounting students. This aligns with various studies, such as Kundu & Roy (2013), Ale (2013), and Almaiah et al. (2020), reinforcing the importance of perceived usefulness and positive expectations for technology adoption.

Effort Expectancy (H2): Not Supported. Contrary to expectations, effort expectancy does not significantly impact technology acceptance among accounting students. Inconsistencies in findings from Kast (2022) and Nandwani & Khan (2016) suggest that the ease of system use may not be a strong determinant for technology acceptance in this context.

Social Influence (H3): Not Supported. Social influence does not significantly impact behavioral intention, contradicting previous literature (Abdullah & Ward, 2021; Dwivedi et al., 2017; Venkatesh et al., 2003). The lack of significance may be attributed to challenges in leveraging social influence to enhance technology acceptance among students.

Facilitating Conditions (H4): Supported. The presence of organizational and technical infrastructure significantly influences behavioral intention, consistent with studies by Abu-Gharrah & Aljaafreh (2021), Wu and Liu (2013), and others. Adequate support and resources positively contribute to students' intention to utilize online learning.

Age as a Moderator (H5): Partially Supported. Age moderates the relationship only for facilitating conditions, suggesting that older students place more emphasis on the availability of infrastructure. This aligns with studies highlighting the influence of age on technology acceptance (Raju & Harinarayana, 2019), emphasizing the need for tailored strategies based on age groups.

Gender as a Moderator (H6): Partially Supported. Gender moderates relationships for social influence. Studies by Cheng (2020) and Bandyopadhyay & Barnes (2012) highlight gender differences in technology acceptance. The results suggest that females may prioritize ease of use and social influence, while males focus more on performance-related aspects.

Attitude as a Moderator (H7): Partially Supported. Attitude moderates relationships for effort expectancy only. Positive attitudes enhance perceived ease of use and the availability of infrastructure, aligning with the idea that individuals' feelings and beliefs significantly impact their technology acceptance (Dwivedi et al., 2019).

In conclusion, this study provides nuanced insights into the technology acceptance landscape among accounting students at UiTM. While some variables exhibit strong relationships, others, like effort expectancy and social influence, pose challenges. Tailored strategies considering age and gender differences and fostering positive attitudes can contribute to more effective technology acceptance in online learning.

Limitations and Suggestions for Future Research

This study focuses solely on UiTM accounting students aged 18 to 27, limiting representation across generations. Future research should include diverse student categories for better generalizability. Additionally, the study only explores the behavioral intention of UiTM accounting students, neglecting actual online learning usage in Malaysia. Incorporating usage data and considering factors like hedonic motivation and habit could offer a more comprehensive perspective. Larger sample sizes are recommended for validating the UTAUT2 e-learning model, and introducing variables influencing learning behavior could foster model innovation. The study highlights limited technology infrastructure in universities, suggesting a potential impact on students' behavioral intentions. Further research in countries with robust economies is needed to validate, refute, or expand upon these findings in different contexts.

Researchers are encouraged to involve respondents from diverse generational cohorts, including Generation X, millennials (Gen Y), generation Z (post-millennials), and Generation Alpha. A cross-sectional approach encompassing different generational cohorts is recommended. Next, utilize the UTAUT2 framework with a focus on diverse generational cohorts, retaining existing variables. Explore specific online learning approaches within this theoretical framework, considering that results may vary across different settings and respondent types. Lastly, employ a combination of qualitative methods to delve deeper into the reasons behind the relatively low acceptance of technology in online learning in the Malaysian context. This approach allows for a more comprehensive exploration of factors influencing technology acceptance.

By examining technology acceptance among accounting graduates in their learning approaches in the specific context of the pandemic, this study can provide insights to various stakeholders such as educational institutions, policymakers, administrators and instructional designers for improving students' persistence and retention in online learning to overcome the challenges experienced during this pandemic and transformed to opportunities. The study's findings can be used to inform decision-making and guide the implementation of effective strategies to enhance technology acceptance among accounting students. The findings can serve as a benchmark to evaluate and improve various aspects of technology acceptance in online learning.

Using the findings as a reference point, educational institutions can develop strategies and policies that improve the overall quality and effectiveness of online learning experiences. The results would be helpful to university management in implementing and practicing better teaching and learning approaches to support the online learning needs of students in transitioning from physical classrooms to online learning environments. The study's significance extends beyond the academic realm and has implications for the industry. The findings can provide insights into the proficiency levels of accounting graduates in utilizing technology, which can be valuable information for employers seeking to hire individuals with the suitable digital skill set.

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