

Examining Hybrid Learning Perceptions of Accounting Students using Technology Acceptance Model

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Abstract

This study investigated accounting students' perceptions of hybrid learning, examining its usefulness, acceptance, and factors influencing its adoption. The post-pandemic period offers a unique opportunity to understand how students perceive technology-enhanced education, particularly hybrid learning. The study employed the Technology Acceptance Model (TAM) to analyze students' attitudes toward technology in accounting education. By focusing on accounting students who require practical skills alongside theoretical knowledge, the study aimed to provide insights for strategic planning in university teaching. The findings would contribute to the ongoing improvement of accounting practices and the future of accounting education in response to crises.

Keywords: *Accounting education, student perception, post-pandemic education, remote learning, higher education, technology adoption*

Introduction

The COVID-19 epidemic has had a considerable influence on instruction in several higher education institutions. Academic institutions face significant difficulty in dealing with this unexpected crisis, which is testing their capabilities. Due to the COVID-19 health crisis, universities are now faced with the challenge of developing mechanisms to handle student learning effectively in future catastrophes since they have transitioned to remote education. The epidemic needed swift modifications, particularly in the instruction of hands-on material.

The COVID-19 pandemic has presented a dilemma for higher education institutions in identifying how to address student learning during future calamities, considering the transition to remote learning. Husky et al. (2020) found that the mandatory transition to online education resulted in social isolation, which impacted students' academic performance and professional development negatively. This isolation led to feelings of worry, tension, uncertainty, unhappiness, and demotivation. Regardless of any obstacles, such as pandemics, natural catastrophes, or wars, it is crucial to persist with university education. As a result, blended learning, also known as hybrid learning, has become a favored method for providing courses in higher education. Accordingly, institutions have been forced to provide their courses online, minimizing in-person encounters. Research has shown that hybrid learning, which combines electronic and traditional learning techniques, is the most effective way of education amid the COVID-19 pandemic (Essa, 2022; Muller & Wulf, 2021).

Hybrid learning is defined as formal educational programs that combine online and face-to-face learning (Watson & Murin, 2014). Hidayah et al. (2019) defined hybrid learning as an educational approach that combines in-person and virtual training by using sophisticated technology or internet networks. Meanwhile, Hodges et al. (2020) asserted that it is an instructional approach that leverages technology to transcend the restrictions imposed by geographical separation and temporal limits, allowing students autonomy over their learning process. Hybrid learning is considered an effective learning method because it offers timely feedback, allows flexibility and convenient access to materials, and facilitates self-paced learning (Shorey et al., 2018). The concept of hybrid learning has evolved, with the pandemic acting as a catalyst for its

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acceptance. Prior to the pandemic, hybrid courses were often seen as supplementary or optional. However, the post-pandemic era forced higher learning institutions to fully integrate online elements into their curricula (Ma, 2023; Meyer, 2020).

The COVID-19 pandemic has posed a challenge for higher learning institutions in determining how to address student learning during future catastrophes, given the prevalence of distance learning. Increasing evidence supports the mandatory shift to online education during the COVID-19 pandemic and the adoption of hybrid learning in the era after the pandemic. However, there is a scarcity of empirical information examining the specific attributes that contribute to students' engagement in online learning throughout the pandemic, and there is a dearth of research conducted on the shift towards post-pandemic learning. This poses a challenge, as the lack of information regarding variations in student perceptions may limit educators' understanding of how to deliver uniform and fair learning opportunities to students. Therefore, the objective of this study is to investigate the perceptions of students towards hybrid learning, evaluate their perceptions of its usefulness and use, and identify the elements that impact their acceptance or resistance towards this educational approach.

The post-pandemic period provides a unique opportunity to explore how students perceive hybrid learning in the aftermath of their emergency remote education experiences. Understanding how students perceive hybrid learning is important as the dust settles and institutions consider the lessons learned during this time. It provides an opportunity to analyze the pandemic's lasting effects on their views toward technology-enhanced education and the integration of digital tools. Gaining insight into students' perceptions of hybrid learning is important since their attitudes toward technology-integrated learning often influence their acceptance and adoption of it (Sanchez-Prieto et al., 2019). Hence, it is crucial to delve into how students perceive hybrid learning in the aftermath of the pandemic since it could impact their performance. While educators hope that blended learning will improve student performance, they may find it difficult to achieve this goal without significant student participation. Consequently, educators need to understand variations in student perspectives regarding hybrid learning to create personalized educational programs for students from diverse academic fields and to increase the blended learning implementation throughout the entire university (Ali, 2023).

This study focused on the perception of accounting students, as the adoption of technology not only provides convenience but also directly influences the quality of learning and the acquisition of skills necessary for success in the accounting field. Accounting students are expected to learn not only theory but also practical skills, such as financial analysis, data management, and software skills. Therefore, their attitudes toward technology and its integration into the learning process are crucial. The findings of this study would provide insights for higher education institutions to prioritize more effective strategic planning for improving university teaching and learning in response to future crises. Furthermore, it aimed to provide valuable perspectives on the changing trends of incorporating technology in accounting education after the pandemic. The findings would also assist educators, administrators, and policymakers in determining the future of accounting teaching approaches.

For this study, the Technology Acceptance Model (TAM) provides a significant framework for understanding how individuals perceive and adopt technology in various situations. The model, first proposed by Davis in 1989, posits that an individual's desire to adopt a particular technology is impacted by their impression of its ease of use and usefulness. TAM has been extensively used to examine the adoption of technology in several sectors, including education, since its establishment. Evaluating students' perspectives on hybrid learning using the TAM is crucial as it may provide insights into their attitudes, intents, and actions toward incorporating technology into their educational encounters.

This study aimed to enhance the current understanding of hybrid learning and the acceptability of technology in education, specifically within the accounting area. Its objective is to provide a comprehensive understanding of how the pandemic has impacted accounting students' perspectives and attitudes towards technology in education by using the TAM framework. The findings could pave the way for more effective, student-centered, and technologically enhanced accounting education in the post-pandemic era.

The structure of the paper is as follows. The next section is the literature review and hypotheses development, which includes the underlying theory and research framework. The following sections present the research method and design and discuss the results of this study. The final section concludes the paper.

Literature Review and Hypotheses Development

Hybrid Learning

The pandemic outbreak of COVID-19 that affected the entire world had an impact on every element of life, including education. One of the consequences is an alteration in the learning methods employed within educational institutions. One prominent characteristic of this transformation is the evident integration of technology into conventional educational practices, commonly known as blended learning or hybrid learning. Hybrid learning is a learning method that allows educators to combine traditional face-to-face teaching methods with structured online components.

Hidayah et al. (2019) defined hybrid learning as an innovative method in education that integrates traditional in-person teaching with virtual training, facilitated by modern technology and internet networks. According to Watson and Murin (2014), hybrid learning refers to the integration of online and face-to-face learning within official educational courses. According to Linder (2017), hybrid learning involves intentionally using technology to replace planned class time to create a productive learning environment. The concept of hybrid learning has developed over time, with the pandemic serving catalyzing its adoption. Before the pandemic, hybrid courses were frequently considered extra or elective. However, the epidemic necessitated that institutions incorporate online components completely into their curricula (Meyer, 2020; Dadzie & Annan-Brew, 2023; Denia et al., 2024).

The significance of hybrid learning is its capacity to offer an interactive environment that facilitates learners' acquisition of knowledge through the application and practice of learned concepts. The hybrid learning model includes the utilization of various media to deliver educational content, the abundant availability of online resources, student-teaching, and teacher-student interactions, and most significantly, the customization of instructional materials to suit the needs of individual students (Essa, 2022). In the context of the pandemic, face-to-face learning can be effectively facilitated using virtual and online learning platforms, such as Google Meet, Zoom, Microsoft Teams, Cisco Webex, Skype, Google Classroom, and other similar apps that aid and abet in the continuation of learning. It is seen as an effective learning method since it provides fast feedback, allows for greater flexibility and access to resources, and allows for self-paced learning (Shorey et al., 2018). Hybrid learning is, therefore, the most prevalent form of e-learning during COVID-19, and it is also the form that is believed to produce the best results for educational purposes.

Many studies have shown that hybrid learning, which combines conventional and digital learning, is the most effective instructional approach during the COVID-19 pandemic. In a study conducted by Abunamous et al. (2022), they investigated how traditional and online learning affected students' academic performance and accomplishments during the COVID-19 pandemic. The study recommended the implementation of e-learning as a new educational system, citing its demonstrated efficacy in times of crises and disasters. Nonetheless, after the resolution of the crisis, Ayub et al. (2022) recommended that hybrid learning be adopted as the fundamental pedagogical approach, particularly for university-level students. Similarly, Finlay et al. (2022) examined how students interacted with blended and virtual learning approaches during the COVID-19 pandemic. The finding revealed that students had a more favorable opinion of blended learning than virtual learning. The lack of social interaction and the challenge of preserving the authenticity of practical course components are probable factors that led to negative opinions of virtual learning.

Hybrid learning remains a viable and adaptable approach for university students in the post-pandemic era, as it facilitates enhanced interaction, fosters a broader range of experiences, and contributes to improved understanding. The study by Fletcher et al. (2022) revealed that blended learning emerged as a highly effective educational approach for learners in the post-COVID era. Furthermore, Yu et al. (2023) emphasized that hybrid learning has the potential to facilitate the development of self-study habits among students while also offering insights into innovative approaches to problem-solving. Li (2002) found that students think that a blended learning approach that incorporates both online and classroom learning is

essential in the post-pandemic era. Most of them expressed a lack of commitment towards online courses compared to face-to-face learning, and online learning failed to satisfy their expectations in terms of student engagement. Zapata-Cuervo et al. (2021) supported that, while students demonstrated elevated levels of engagement in online learning, they assessed it as less effective and demanding than face-to-face learning. The findings revealed that blended learning is the preferred learning method as students can show a comprehensive understanding of the subject matter while improving the use of technology in blended learning.

On the other hand, a study by Armin and Siregar (2022), who examined students' views on hybrid learning following the COVID-19 break, revealed that hybrid learning was deemed impractical as a teaching option for lectures. The internet network became the biggest problem for them when they were trying to record the reading material and information. They also had to pay extra fees to get better internet service. Several studies [e.g., Nikolopoulou (2022), Iqbal et al. (2022), and Khan et al. (2022)] have highlighted perceived drawbacks, including technical problems and poor internet access. These drawbacks mean that students possess an incomplete understanding of their lecturers' teachings, resulting in the submission of their assignments either just before the deadline or at the last minute. Furthermore, students faced difficulties actively participating in online sessions because of internet connectivity problems, financial constraints, and exhaustion. Meanwhile, Xie et al. (2020) found that students experienced decreased interactions with both instructors and peers. Johnson et al. (2018) found that most of the participants in their study expressed uncertainty about their skills and abilities when engaging in hybrid learning activities. They considered these activities as "overwhelming" and "excessive," and, hence, suggested more guidance using an online course management system.

The application and execution of hybrid learning in education became more challenging due to the diverse possibilities it offers. Even though hybrid learning, or online learning, has been the subject of extensive global research, it is crucial to investigate the variables that influence its use at particular educational institutions. Course design, instructional strategies, and student characteristics may all have influences on hybrid learning's effectiveness. However, many concerns remain unresolved regarding student perceptions of blended learning, notably the extent to which the variances exist among students and the common causes that contribute to their diverse thinking. Understanding students' behavioral intentions is essential for technology adoption in the context of hybrid learning (Teo et al., 2008). Therefore, investigating students' perceptions is important since they are likely to influence their attitudes towards hybrid learning in the post-pandemic period to strategize the future development and progression of university education effectively.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), created by Davis (1989), is one of the most widely used research models for describing and predicting user behavioral intentions about information technologies. The foundation of TAM is in the Theory of Reasoned Action (TRA), which suggests that individuals' behavioral intentions are determined by their attitudes and subjective norms (Fishbein & Ajzen, 1980). TAM streamlines TRA in the context of technology adoption by concentrating on two crucial factors: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is frequently considered one of the most influential determinants of technology acceptance. According to Davis (1989), users are more inclined to adopt and use the technology when they perceive it as valuable and advantageous for their tasks or work. On the other hand, perceived ease of use pertains to the user's perception of how effortless it is to interact with and learn the technology. The adoption is more likely for a technology that is simple and easy to operate.

Since its inception, TAM has undergone several modifications and extensions in efforts to enhance its explanatory capacity and applicability. Researchers have incorporated additional concepts and extraneous variables and modified TAM to suit diverse contexts. Although PU and PEOU constitute the fundamental elements of TAM, other external factors might impact users' perceptions and thus affect their behavioral intentions (Venkatesh & Davis, 2000). The variables include the following:

i. **System Characteristics:** The attributes, dependability, and functionalities of the technology can influence users' perceptions. A system perceived as sturdy and effective is more likely to be accepted.

ii. Social Influences: The impact of peer pressure, social norms, and the perspectives of colleagues or friends can significantly influence individuals' choices to either embrace or reject technology.

iii. Experience: Users' opinions of innovative technology can be influenced by their prior experience with similar ones. Favorable situations can result in more acceptance.

Studies by Wu and Chen (2017), Teo (2019), and Sun et al. (2008), where TAM has been applied to predict student technology acceptance in hybrid learning, discovered that students' opinions of the ease of use and usefulness of Learning Management Systems (LMSs) influenced their intentions to use these systems in hybrid courses. This outcome highlights the significance of TAM in predicting technology acceptance among students in hybrid learning environments. Meanwhile, the studies by Al-Adwan and Al-Adwan (2014), Venkatesh and Bala (2008), and Teo et al. (2008) investigated the factors that influence instructors' usage of technology in education using TAM and found that teachers' adoption of technology is crucial in the successful implementation of hybrid learning.

Several studies have explored additional factors that may influence TAM in the context of hybrid learning. For instance, Al-Fraihat et al. (2020) investigated the impact of social influence and system quality on students' acceptance of hybrid learning technologies. They discovered that these elements, along with perceived ease of use and usefulness, had a significant impact on students' intentions to use technology in blended learning environments. In a recent study, Zhou et al. (2021) emphasized the influence of psychological and environmental factors on learners' acceptance of e-learning and their ability to regulate themselves online.

The Technology Acceptance Model has proven to be an effective framework for understanding technology acceptance and adoption in hybrid learning. As hybrid learning continues to evolve, the TAM remains a relevant and strong framework for our studies to examine technology integration and user acceptance in educational settings, thereby assisting educators and institutions in making informed decisions about integrating technology into their teaching and learning processes, particularly post-pandemic.

Students' Perceptions on Hybrid Learning

According to Anggraini et al. (2021), perception refers to how we perceive and understand information based on our senses and how we relate it to previous experiences. Ansow et al. (2022) determined that perception encompasses the cognitive process through which individuals structure and analyze their sensory inputs to gain an understanding of their environment and attribute significance to it. Hong et al. (2003) defined perception as the cognitive evaluation by an individual regarding what they have learned. This evaluation has an impact on their behavior and attitude towards its use. Based on these perspectives, it is possible to conclude that students construct their own opinions and reactions to the knowledge they obtain during the teaching and learning process.

Studies indicate that students have diverse perspectives regarding this method of teaching. The students' behavioral attitudes serve as an indicator of their subjective evaluation of their engagement in blended learning. Students' inclination to embrace mixed learning is enhanced when they possess favorable attitudes towards engaging in hybrid learning (Yu et al., 2023). Giddis (2020) reported 93% positive results in the study on students' perceptions of hybrid learning. Students demonstrate a keen interest in online activity forums, and teachers also support the use of blended learning methods. Furthermore, the research by Gironzetti et al. (2020) on students' perceptions found that students have positive perceptions of technology-integrated online activities. These activities are highly valued by students, as they not only increase their interest but also improve their skills. Bendania (2011), for instance, discovered that students have favorable attitudes toward the mixed learning environment, with experience, confidence, enjoyment, usefulness, intention to use, motivation, and ICT skills being the most important contributing elements. Bower (2017) indicated that students' attitudes toward educational technologies and methods are often influenced by their perceived effectiveness. Technological readiness, which includes students' familiarity with digital tools and their confidence in using them, exerts a substantial influence on their acceptance of technology-enhanced learning (Venkatesh & Davis, 2000).

However, students with prior experience in online learning may exhibit different attitudes towards hybrid learning in contrast to those without such experience. Conversely, if students lack positive cognitive and emotional attitudes toward mixed learning, it can reduce their willingness to engage in blended teaching

(Tao et al., 2022). For instance, while certain students like the adaptability and convenience of online components, others may have difficulties with self-regulation and time management (Garrison & Kanuka, 2004). Picciano (2017) added that students' perceptions of hybrid learning may vary depending on their socioeconomic background, level of digital literacy, and availability of supportive learning settings. Hence, effective communication of course expectations, well-structured learning modules, and synchronization between online and face-to-face activities are all important for fostering a unified learning experience (Garrison & Vaughan, 2008). According to Bonk and Graham (2019), the approach by which hybrid courses are designed and the instructional methods chosen have a substantial impact on how students perceive the quality and effectiveness of the course.

Although hybrid learning encourages active engagement through online forums, multimedia materials, and collaborative projects, it can be challenging to sustain meaningful interactions, especially with asynchronous components. Therefore, understanding students' perceptions of hybrid learning is important for informed decision-making and effective teaching methods as educational institutions navigate the post-pandemic landscape. By addressing the challenges and leveraging the benefits of hybrid learning, educators may develop engaging, inclusive, and effective learning environments that fulfill students' diverse needs in the post-pandemic period.

Hypotheses Development

Perceived Ease of Use (PEOU)

Perceived ease of use (PEOU) refers to the degree to which students consider participating in hybrid learning as physically and cognitively challenging (Yu et al., 2023). TAM provides a fundamental framework for understanding the students' perception of the ease of use. According to TAM, perceived ease of use plays a vital role in determining the acceptance of technology.

Perceived ease of use in hybrid learning pertains to the degree to which students, educators, and other stakeholders regard the technology employed in hybrid learning as intuitive and easily accessible. Previous studies have shown that PEOU influences the desire to use e-learning technologies as a sustainable resource in higher education. Alqurashi (2016) found a positive association between students' perceptions of the ease of use of online learning environments and their pleasure and perceived learning. In addition, Alqahtani et al. (2022) discovered that the existence of PEOU had a beneficial influence on students' willingness to use e-learning and their utilization of the e-learning system. This outcome implies that when students see the technology used in hybrid learning as user-friendly and easy to navigate and interact with, they are more likely to be actively involved in learning and achieve better learning outcomes. As a result, this study proposed the following hypothesis:

H1: Perceived ease of use (PEOU) of hybrid learning has a positive impact on the perception of students.

Interest in Uses

Several factors have contributed to the rise in interest in hybrid learning. Firstly, advances in technology have made it easier to create and deliver high-quality online content making hybrid models more feasible to employ (Allen & Seaman, 2013). Furthermore, the COVID-19 pandemic necessitated rapid adaptations by educational institutions, leading to a rise in hybrid and online learning (Hodges et al., 2020). The widespread use of this approach has expedited the study and development of hybrid learning models.

Garrison and Kanuka (2004) discovered that hybrid learning offers flexibility in learning experiences, allowing learners to customize their education. The flexibility of hybrid learning may contribute to the growing interest in hybrid learning as a means of fulfilling the unique needs of learners. Means et al. (2013) performed a meta-analysis on studies of online learning and found that blended learning can lead to improved learning outcomes. This finding indicates that the growing interest in hybrid learning may be attributed to the possibility of better academic results. As a result, this study proposed the following hypothesis:

H2: Interest in the use of hybrid learning has a positive impact on the perception of students.

Perceived Usefulness

The TAM proposes that perceived usefulness influences users' intention to use technology significantly. In hybrid learning, this model implies a positive correlation between perceived usefulness and satisfaction with the learning experience. Venkatesh and Davis (2000) confirmed the suitability of TAM for educational technology, emphasizing the significance of perceived usefulness as a factor influencing the adoption of technology.

Studies have shown that student satisfaction with the learning experience can have a favorable impact on their academic achievement. Students are more likely to view hybrid learning as valuable when they experience tangible academic benefits (Alamri et al., 2020). With hybrid learning, students may access course materials and participate in discussions at their own pace, giving them convenience and flexibility. The convenience of accessing course content online positively influenced the perceived usefulness of the hybrid learning model (Teo & Dai, 2022). Thus, the following hypothesis was proposed:

H3: Perceived usefulness (PU) of hybrid learning has a positive impact on the perception of students.

Research Methodology

Sample Selection

This study primarily targeted undergraduate and postgraduate students. A questionnaire was developed and used as a research tool to collect data from this target group i.e., accounting students enrolled at Mara University of Technology (UiTM) Puncak Alam, Selangor, Malaysia. The study employed a quantitative research method to investigate theoretical models and test hypotheses. The survey items were carefully developed after an extensive review of relevant literature, ensuring that they addressed all aspects of the research process. A power analysis established the sample size to provide adequate statistical power. To ensure representativeness, a stratified random sampling approach was employed to select participants from various academic years or levels, such as undergraduate and graduate.

Data Collection

A survey questionnaire was adapted from Davis (1989) using the TAM to investigate the students' perceptions of hybrid learning. The survey questionnaire was created using Google Forms and shared through the online platform with accounting students at Mara University of Technology (UiTM). It consisted of five sections aimed at evaluating the following aspects: demographic information of the respondents, their perception of ease of use, their interest in using the system, their attitude towards using it, and their perception of its usefulness. The first four inquiries prompted the respondents to provide their demographic data. The survey contained items about gender, age group, current academic year, and current semester. The subsequent items used a 5-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree) to assess the extent to which the respondent agreed or disagreed with the statements.

This study used several statistical techniques proposed by Hair et al. (2017) to ensure the quality and reliability of the survey instrument. These techniques included factor loadings to establish construct validity, convergent validity assessments, Cronbach's α to measure internal consistency and scale reliability, and evaluating model goodness of fit through converging validity. The Statistical Package of Social Science (SPSS) version 29 was used to analyze the data.

Result and Analysis

This section presents the results of the data analysis performed using the SPSS version 29. One hundred and forty (140) questionnaires were collected and used for data analysis, representing the responses from accounting students at UiTM Puncak Alam, Selangor, Malaysia. Before subjecting the dataset to statistical analysis, a rigorous data preparation phase was undertaken. This phase included data cleaning and validation procedures to verify that the responses were accurate and consistent. Missing numbers, outliers, and any inconsistencies were addressed to ensure the integrity of the data.

Descriptive Analysis

The demographic profile of the survey on hybrid learning perceptions' respondents in Table 1 reveals a significant skew towards younger and female participants. The number of females is significantly higher than that of males, accounting for 74.3% of the participants. In terms of age, most respondents (56%) fall into the 18–22 age range, which is typical of the undergraduate age groups. Only 2.1% of respondents are 28 years or older, indicating that the survey primarily represents the perspectives of younger students. Regarding academic progression, most participants (51.4%) are in their third year of study. This figure could indicate an increased level of student involvement or a greater interest in hybrid learning modalities at this stage of their academic path. The distribution of semesters reveals an equal representation of the first and second semesters, each accounting for 22.9% of the survey population, which strongly indicates that the majority of the respondents experienced hybrid learning during the early stages of their academic journey.

Table 1. Demographic Profile.

		N	Percentage%
Gender	Male	36	25.7
	Female	104	74.3
Total		140	100.0
Age	18 to 22	82	58.6
	23 to 27	52	37.1
	28 to 32	3	2.1
	33 to 37	1	0.7
	Above 38	2	1.4
Total		140	100.0
Current Year of Study	Year 1	6	4.3
	Year 2	28	20
	Year 3	72	51.4
	Year 4	34	24.3
Total		140	100.0
During semester March – July 2020, I am in a semester	Semester 1	32	22.9
	Semester 2	30	21.4
	Semester 3	23	16.4
	Semester 4	16	11.4
	Semester 5	6	4.3
	Semester 6	27	19.3
	Semester 7	5	3.6
	Semester 8	1	0.7
Total		140	100.0

Factor Analysis

The findings of the factor analysis for perceived ease of use (PEOU) are displayed in Table 2, Panel A. The KMO value is 0.969. The value is within the superb range, indicating confidence that the sample size is adequate for factor analysis. Furthermore, the results also indicate that all twelve loading values fall within the range of 0.746 to 0.896, as presented in Table 2, Panel B. These data show that a threshold of 0.5 or above is reasonable, as indicated by Hair (2011).

Table 2. Panel A: Factor Analysis for Attitude Toward Using.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.969
Bartlett's Test of Sphericity	Approx. Chi-Square	2461.080
	df	66
	Sig.	<0.001

Table 2-Panel B: Factor Loading Values for Attitude Toward Using.

Factors		Extraction
Item	Attitude towards using	
D1	I feel happy using hybrid learning	0.815

D2	I have positive views of the use of hybrid learning	0.811
D3	I feel that using hybrid learning is a fun thing.	0.746
D4	I feel that hybrid learning suits my lifestyle and habits	0.828
D5	I feel happy when interacting with hybrid learning	0.883
D6	I hope to use hybrid learning in my studies	0.888
D7	I feel enthusiastic about using hybrid learning in my daily activities	0.896
D8	I feel that using hybrid learning is an excellent choice	0.892
D9	I would be satisfied if I have to continue using hybrid learning	0.888
D10	I would recommend using hybrid learning to friends	0.819
D11	Using hybrid learning helps me feel more effective in lectures	0.818
D12	I feel that hybrid learning has added significant value to my assignments	0.811

The results of the factor analysis for perceived ease of use (PEOU) are presented in Table 3-Panel A, indicating a KMO value of 0.919. This value indicates that the data is very suitable for factor analysis as it falls under the range of being superb. Table 3-Panel B shows that the values vary from 0.447 to 0.832. These values indicate the extent to which the extracted factors account for the variability in each variable.

Table 3-Panel A: Factor Analysis for Perceived Ease of Use (PEOU).

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.919
Bartlett's Test of Sphericity	Approx. Chi-Square	1253.243
	df	45
	Sig.	<0.001

Table 3. Panel B: Factor Loading Values for Perceived Ease of Use (PEOU).

Factors		Extraction
Item	Perceived Ease of Use (PEOU)	
B1	I find hybrid learning is easy to learn	0.784
B2	I find hybrid learning is easy to use	0.743
B3	I feel hybrid learning is not complicated	0.704
B4	I find hybrid learning is easy to understand	0.787
B5	I find hybrid learning requires minimal effort	0.491
B6	Hybrid learning does not require much effort to adapt	0.447
B7	I feel comfortable when using hybrid learning	0.739
B8	Hybrid learning involves clear and easy access documentation	0.528
B9	I feel that hybrid learning has simple navigation	0.753
B10	I feel that hybrid learning is easy for users to understand	0.832

The factor analysis results for interest in use are presented in Table 4-Panel A, indicating a KMO value of 0.945. The investigation demonstrates that all ten loading values, as presented in Table 4-Panel B, fall within the range of 0.621 to 0.880.

Table 4. Panel A: Factor Analysis for Interest in Use.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.945
Bartlett's Test of Sphericity	Approx. Chi-Square	1783.197
	df	45
	Sig.	<0.001

Table 4. Panel B: Factor Loading Values for Interest in Use.

Factors		Extraction
Item	Interest in Uses	
C1	I am interested in actively using hybrid learning	0.815
C2	I feel interested in learning more about the features of hybrid learning	0.880
C3	I want to try all the functions offered by hybrid learning	0.742
C4	I feel enthusiastic about using hybrid learning in my studies	0.822
C5	I want to spend time exploring various aspects of hybrid learning	0.832
C6	I am interested in learning more about using hybrid learning	0.855
C7	I feel interested in the potential benefits I can get from hybrid learning	0.841
C8	I want to spend time interacting using hybrid learning	0.847
C9	I feel like I want to continue using hybrid learning in my daily activities	0.812
C10	I am interested in sharing my experiences using hybrid learning with other people	0.621

Table 5-Panel A displays the factor analysis results for perceived usefulness (PU), with a KMO value of 0.941. The results indicate that all ten loading values fall within the range of 0.676 to 0.886, as presented in Table 5-Panel B.

Table 5. Panel A: Factor Analysis for Perceived Usefulness (PU)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.941
Bartlett's Test of Sphericity	Approx. Chi-Square	1683.271
	df	45
	Sig.	<0.001

Table 5. Panel B: Factor Loading Values for Perceived Usefulness (PU).

Factors		Extraction
Item	Perceived Usefulness (PU)	
E1	Using hybrid learning will help me complete my assignments more efficiently	0.676
E2	I believe that using hybrid learning will increase my work productivity	0.735
E3	Hybrid learning has the potential to provide significant benefits for achieving my study goals	0.785
E4	Using hybrid learning will allow me to access the information I need more quickly	0.723
E5	I feel that hybrid learning will help me make better decisions in my work	0.852
E6	I am confident that the use of hybrid learning will have a positive impact on my work results	0.886
E7	Hybrid learning will help me reduce the time required to complete routine tasks	0.777
E8	I believe that the use of hybrid learning will help me overcome work challenges better	0.809
E9	Hybrid learning has the potential to improve the quality of the work I produce	0.856
E10	I believe that the use of hybrid learning will help me achieve success in my work	0.786

Reliability Analysis

Cronbach's alpha is often used to assess the reliability of a questionnaire. It provides a simple method to ascertain the reliability of a score. For Cronbach's alpha, a threshold value of > 0.7 is appropriate. Individual participant's responses were used for each psychometric evaluation (Nunally & Bernstein, 1994). Subsequent reliability tests were carried out in this study on the statements pertaining to each variable, and the results are summarized in Table 14.

Table 6. Summary of Reliability Analysis.

Dimension	No of items/statements	Cronbach's Alpha
Overall	42	0.990
Attitude Toward Using	12	0.983
Perceived Ease of Use (PEOU)	10	0.940
Interest in Use	10	0.972
Perceived Usefulness	10	0.969

The results demonstrate that the scale used in this study is highly reliable, indicating that the measurements are consistent and dependable. Cronbach's Alpha revealed that all 42 items had scores greater than 0.7, with an overall reliability coefficient of 0.990. This is a favorable indicator since it indicates that the elements in the items on the scale are highly correlated with each other. The value for attitude toward using is 0.983, perceived ease of use (PEOU) is 0.940, interest in use is 0.972, and perceived usefulness (PU) is 0.969. In summary, the reliability analysis indicates that the scale used in this study is highly reliable and internally consistent.

Correlation Analysis

The Pearson correlation coefficient (r) was employed in this study to evaluate the significance of the relationship between each independent variable and the dependent variable. The findings displayed in Table 7 offer significant insights into the correlations among the different variables.

The correlation analysis reveals a strong positive relationship between attitude toward using and perceived ease of use (PEOU), with a Pearson correlation coefficient (r) of 0.907 and a significance value of less than 0.001. This outcome suggests that, as students' attitudes toward hybrid learning improve, so does their perception of its ease of use. The correlation coefficient (r) of 0.897 between attitude toward using and interest in use is statistically significant at $p < 0.001$. This result indicates a strong positive correlation between students' attitudes toward hybrid learning and their level of interest in use. In other words, as students have a more positive attitude toward hybrid learning, their curiosity and interest in exploring its diverse applications also increase significantly. A significant positive relationship (r) of 0.913 is found between attitude toward using and perceived usefulness (PU) in the study. The p -value of less than 0.001 further indicates the statistical significance of this correlation. This finding suggests that, as students' attitudes toward hybrid learning become more positive, so does their perception of its usefulness.

In conclusion, the correlation analysis conducted in this study not only identifies significant associations between attitude toward using and the key variables, such as perceived ease of use, interest in uses, and perceived usefulness, but also provides a high level of confidence in the robustness of these relationships within the studied sample.

Table 7. Pearson Correlations among Variables.

		Correlations ^b			
		Attitude Toward Using	Perceived Ease of Use (PEOU)	Interest in Use	Perceived Usefulness (PU)
Attitude Toward Using	Pearson Correlation	1			
	Sig. (2-tailed)				
Perceived Ease of Use (PEOU)	Pearson Correlation	0.907**	1		
	Sig. (2-tailed)	<0.001			
Interest in Use	Pearson Correlation	0.897**	0.850**	1	*
	Sig. (2-tailed)	<0.001	<0.001		1
Perceived Usefulness (PU)	Pearson Correlation	0.913**	0.863**	0.876**	1
	Sig. (2-tailed)	<0.001	<0.001	<0.001	
		1			

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

b. Listwise N=140

Regression Analysis

The results in Table 8 show a correlation value (R) of 0.907, showing a strong positive linear relationship between perceived ease of use (PEOU) and the dependent variable, Attitude Toward Using. This output indicates that PEOU, collectively explains a substantial portion of the variability observed in the dependent variable. The R-square value of 0.823 indicates the percentage of variability in the dependent variable that can be explained by PEOU. In this case, approximately 82.3% of the variability in Attitude Toward Using can be explained by the combination of the constant and PEOU.

Overall, the model appears to be well-fitted, as indicated by the high R-square value, indicating a strong correlation between the predictors and the dependent variable. The low standard error (0.38067) of the estimate further indicates a high level of accuracy.

Table 8. Model Summary for Perceived Ease of Use (PEOU) and Attitude Toward Using.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.907 ^a	0.823	0.822	0.38067

Note: a. Predictors: (Constant), PEOU

b. Dependent Variable: Attitude Towards Using

ANOVA is a statistical method used to analyze the variability levels within a regression model and serves as the foundation for significance tests. Table 9 demonstrates that the regression component of the model accounts for a considerable proportion of the variability in the dependent variable, as shown by a sum of squares of 93.191 and an F-statistic of 643.095. Incorporating PEOU into the model improves the understanding of Attitude Toward Using. In contrast, the residual component has a sum of squares of 19.998, representing unexplained variability or error in the model. This percentage of variability is unexplained by the independent variable. It is unaccounted for by the independent variable and serves as a reminder of the crucial complexity of Attitude Toward Using that extends beyond PEOU.

The sum of squares of 113,189 shown in Table 9 captures the overall variability in the dependent variable, which includes both explained and unexplained components. The ANOVA table indicates that the F statistic is 643.095, with a significance level of <0.001. The p-value provides convincing evidence against the null hypothesis and indicates that PEOU significantly influences Attitude Toward Using. Based on the ANOVA results, it can be inferred that there is sufficient evidence to support the assertion that PEOU significantly influences Attitude Toward Using.

Table 9. ANOVA for Attitude Toward Using and Perceived Ease of Use (PEOU).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93.191	1	93.191	643.095	<0.001 ^b
	Residual	19.998	138	0.145		
	Total	113.189	139			

Note: a. Dependent Variable: Attitude Towards Using

b. Predictors: (Constant), PEOU

In this study, regression analysis was utilized to find the direct influences of PEOU on Attitude Toward Using and the results are displayed in Table 10 below.

Table 10. Coefficient for Attitude Toward Using and Perceived Ease of Use (PEOU).

Model		Unstandardized Coefficient		Standardized Coefficient		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	0.044	0.157		0.280	0.780
	PEOU	0.995	0.039	0.907	25.359	<0.001

Note: a. Dependent Variable: Attitude Towards Using.

The coefficient for PEOU is 0.995, which means that for every one-unit increase in PEOU, Attitude Toward Using is expected to increase by 0.995 units. The relationship is statistically significant, as indicated by the high t-value of 25.359 and significance level of $p < 0.001$. The standardized coefficient (Beta) of 0.907 emphasizes the strength and direction of this effect, indicating that PEOU has a significant positive impact on Attitude Toward Using. Hence, H1 is supported in this study.

Table 11 presents the results of the regression analysis on the Interest in Use and the dependent variable, Attitude Toward Using. The result shows a significant relationship between Interest in Use and Attitude Toward Using.

Table 11. Model Summary for Attitude Toward Using and Interest in Use.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.897 ^a	0.804	0.803	0.38067

Note: a. Predictors: (Constant), Interest in Uses

b. Dependent Variable: Attitude Toward Using

The correlation coefficient for this hypothesis is 0.897, showing a highly positive association between the two variables. This output implies that when Interest In Use increases, Attitude Toward Using also tends to increase. The R-Square value of 0.804 suggests that around 80.4% of the variation in Attitude Toward Using can be explained by Interest in Use. This output indicates that the level of interest in uses is a robust indicator of the students' perception in the model. The Adjusted R-Square value is 0.803, which closely approximates the R-Square value and further indicates that Interest in Use, as a predictor in the model, significantly enhances the ability to explain the variance in Attitude Toward Using.

The ANOVA analysis shown in Table 12 focuses on predicting the dependent variable, Attitude Toward Using, based on the independent variable, Interest in Use.

Table 12. ANOVA for Attitude Toward Using and Interest in Use.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.045	1	91.045	567.380	<0.001 ^b
	Residual	22.144	138	.160		
	Total	113.189	139			

Note: a. Dependent Variable: Attitude Toward Using

b. Predictors: (Constant), Interest in Use

The regression model is statistically significant, as demonstrated by the high F-statistic of 567.380 and the related p-value of <0.001. The strong F-statistic and low p-value imply that the association between these factors is likely important. Hence, it indicates a strong relationship between Interest in Use and Attitude Toward Using, suggesting that Interest in Use is a significant predictor of Attitude Toward Using.

This study also examined the direct impact of Attitude Toward Using and Interest in Use as shown in Table 13.

Table 13. Coefficient for Attitude Toward Using and Interest in Use.

Model		Unstandardized Coefficient	Standardized Coefficient			Sig.
		B	Std. Error	Beta	t	
1	(Constant)	0.378	0.154		2.462	0.015
	Interest in Uses	0.906	0.038	0.897	23.820	<0.001

Note: a. Dependent Variable: Attitude Toward Using

The constant term indicates the regression equation's intercept when all predictor variables are zero. The positive coefficient indicates that while Interest in Use is zero, the expected Attitude Toward Using is 0.378. Furthermore, the t-value of 2.462 and the significance level (Sig.) of 0.015 show that this intercept is statistically significant. The coefficient value of 0.906 indicates a strong positive correlation between Interest in Use and Attitude Toward Using. This output implies that individuals who consider a system or technology as user-friendly are more likely to have favorable attitudes toward using hybrid learning.

Thus using the above regression results, it can be concluded that Interest in Use is a significant predictor of Attitude Toward Using. This finding suggests that efforts to increase interest in using a system or technology may have a favorable impact on students' attitudes toward using hybrid learning. Therefore, H2 is supported in this study.

Table 14 presents the results of the regression analysis on the independent variable, Perceived Usefulness (PU), and the dependent variable, Attitude Toward Using. The correlation coefficient in this model is 0.913, showing a strong positive association between the two variables. This output implies that when the PU of hybrid learning increases, there is a tendency for the attitude toward using it to also increase. The R-Square

value of 0.834 suggests that around 83.4% of the variation in Attitude Toward Using can be explained by PU. These findings indicate that Perceived Usefulness is an accurate predictor of Attitude Toward Using in the hypothesis.

The Adjusted R-Square value of 0.833 is nearly identical to the R-Square value, suggesting that the inclusion of PU as a predictor in the hypothesis helps to explain the variability in Attitude Toward Using. Finally, the value of the standard error of the estimate of 0.36910, which acts as a measure of the model's prediction accuracy, suggests that a lower score implies that the hypothesis's predictions are more accurate.

Table 14. Model Summary for Attitude Toward Using and Perceived Usefulness (PU).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.913 ^a	0.834	0.833	0.36910

Note: a. Predictors: (Constant), PU

b. Dependent Variable: Attitude Toward Using.

As shown by the high F-statistic of 692.849 and the corresponding p-value of <0.001, the ANOVA analysis in Table 15 shows that the regression model is very statistically significant. The strong F-statistic and low p-value imply that the link between these factors is not random and is likely to be significant. This finding indicates that Perceived Usefulness (PU) plays a crucial role in explaining the variability in students' perception of hybrid learning.

Table 15. ANOVA for Attitude Toward Using and Perceived Usefulness (PU).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.389	1	94.389	692.849	<0.001 ^b
	Residual	18.800	138	0.136		
	Total	113.189	139			

Note: a. Dependent Variable: Attitude Toward Using

b. Predictors: (Constant), PU

The coefficient of 1.000 in Table 16 indicates a strong positive correlation between PU and Attitude Toward Using. Consequently, those who see a system or technology as beneficial are more likely to have favorable attitudes toward its usage. Although the constant term is not statistically significant, its impact on explaining attitudes may be relatively less substantial compared to Interest in Use.

In conclusion, based on the coefficients provided, PU is a significant predictor of Attitude Toward Using. This result suggests that the attitudes of individuals towards utilizing a system or technology are significantly impacted by their perception of its usefulness. Therefore, H3 is supported in this study.

Table 16. Coefficient for Attitude Toward Using and Perceived Usefulness.

Model		Unstandardized Coefficient		Standardized Coefficient		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	-0.34	0.154		-0.222	0.825
	PU	1.000	0.038	0.913	26.322	<0.001

Note: a. Dependent Variable: Attitude Toward Using

Conclusion

The study investigated the relationship between perceived ease of use (PEOU), interest in use, perceived usefulness (PU), and attitude toward using hybrid learning. The results indicate strong positive linear relationships between PEOU, interest in use, PU, and attitude toward using. PEOU, interest in use, and PU collectively explained a substantial portion of the variability observed in attitude toward using hybrid learning. The findings suggest that perceptions of the ease of use, interest in use, and usefulness of hybrid learning significantly influence students' attitudes towards its use.

One limitation of the study is its focus on a specific context (hybrid learning) and student population, which may limit the generalizability of the findings to other contexts or populations. Additionally, the study relied

on self-reported measures, which can introduce bias. Future research could address these limitations by including a more diverse range of participants and contexts.

The findings of this study have several implications for practice. Educators and instructional designers can use the results to design hybrid learning environments that are perceived as easy to use, interesting, and useful by students, which may lead to more positive attitudes toward their use. Additionally, policymakers and administrators can use the findings to make informed decisions about the implementation and promotion of hybrid learning in educational settings.

Based on the findings of this study, it is recommended that educators and instructional designers focus on enhancing the perceived ease of use, interest in use, and usefulness of hybrid learning environments. This enhancement could be achieved through training and support for students, as well as the integration of interactive and engaging elements into hybrid learning materials. Furthermore, future research could explore the impact of interventions aimed at improving these factors on students' attitudes and performance in hybrid learning environments.

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