Research Article

Determinants of E-Learning effectiveness among Faculty of Hotel and Tourism students

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Fathonah Mohd Azhar
Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia

Nur Zarith Abdul Majaid
Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia

Siti Nurhanifah Sulong
Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia

Amir Manshoor*
Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia
amirmanshoor@uitm.edu.my

Muhamad Shah Kamal Ideris
School of Tourism, Hospitality and Environmental Management,
University Utara Malaysia (UUM), Kedah

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Abstract
The rapid shift to online education has highlighted the importance of understanding factors that determine the effectiveness of e-learning, particularly in skill-based disciplines such as hospitality and tourism. A quantitative, correlational study was conducted, targeting university students with prior experience of using e-learning platforms within 3 months of data collection. Data were collected in Faculty of Hotel and Tourism Management, University Teknologi MARA (UiTM) Cawangan Terengganu and 318 valid responses were analyzed using SPSS. The reliability and validity of the data were confirmed. Descriptive analysis and Pearson correlation analysis were used to answered the objective of the study. The results revealed that all three factors were significantly and positively correlated with e-learning effectiveness, with perceived usefulness emerging as the strongest influence, followed by perceived ease

of use and computer self-efficacy. The findings also provide practical implications for higher education institutions to design effective digital learning strategies, emphasizing user-friendly platforms and relevant content to support both theoretical and practical outcomes.

Keywords:

e-learning effectiveness, computer self-efficacy, perceived ease of use, perceived usefulness

1 Introduction

E-learning has rapidly evolved into a significant mode of instruction in higher education (Mushtaha et al., 2022), especially following the COVID-19 pandemic, which forced a swift transition from traditional classroom-based learning to online platforms (Carabregu-Vokshi et al., 2024). This transformation has been embraced by universities worldwide to ensure the continuity of teaching and learning while providing flexibility in terms of time, location, and access to resources (Turan et al., 2022; Najjar et al., 2025). the method used for teaching and learning is wider and acceptable to both parties. E-learning offers numerous advantages, such as cost-effectiveness, adaptability, and convenience (Najjar et al., 2025). However, its effectiveness varies across academic disciplines. For example, the hospitality and tourism field, which is heavily dependent on practical, hands-on training, replicating the richness of physical learning experiences in an online environment presents unique challenges. Although theoretical knowledge can be delivered effectively through digital means, simulating real-world scenarios, skill-based tasks, and interactive engagement remains complex. Besides that, the success of e-learning is not determined solely by the availability of technology but also by the learners' readiness (El-Gazar et al., 2024), confidence, and perceptions of its ease of use and usefulness (Linus et al., 2025).

Moreover, online-readiness and accessibility of the systems play a crucial role in making students persist with the use of online learning sites. Almaiah et al. (2020) conducted research that highlighted the necessity of student judgments regarding the ease of use of the system and its usefulness as directly influencing their motivation to participate in online learning. They propose that more user-friendly and responsive platforms cause less stress and increase empowerment by students, resulting in reported satisfaction levels and good results.

Besides that, some challenges such as low interactivity, technological factors, and lack of successive embedding of automated interactive tools raise questions about the success of using e-learning (Kim et al., 2022). The reason is that students, especially in the field of hospitality and tourism, require a lot of practical skills in the kitchens, and those activities are also difficult to provide through online classes because the detailing of the hands-on cannot be viewed in detail or close up. These facts make students wonder if it's feasible to modify e-learning resources to meet the requirements of this subject. If all these requirements cannot be viewed inside the e-learning, then students may find it is difficult to implement what they have learned in the classroom, thus may affect their skills in the future (Mohammed, 2020).

In addition, students who have different access to technology and levels of digital knowledge can also lead to unequal results in e-learning (Gill et al., 2022). For example, students who have no access to high-speed internet connectivity or advanced gadgets are likely to encounter more difficulties when they attempt to study online, making e-learning course even less helpful.

Although previous studies supported that factor such as computer self-efficacy, perceived ease of use, and perceived usefulness significantly influence the adoption and effectiveness of online learning platforms (Faqih, 2020; Yao & Wang, 2024; Yan et al., 2024 & Linus et al., 2025) however, there is limited research examining these determinants in the context of university students from hospitality and tourism departments, particularly in Malaysia. Therefore, this study was conducted to evaluate computer self-efficacy, perceived ease of use, and perceived usefulness towards e-learning effectiveness among students from the Faculty of Hotel and Tourism Management in the university.

2 Literature Review

2.1 E-learning effectiveness in Hospitality and Tourism Education

E-learning has become an integral component of higher education, especially during and after the COVID-19 pandemic (Mahyoob, 2021; Wan Mamat et al., 2022). While it is widely recognized for its flexibility, cost-effectiveness, and accessibility, its application in hospitality and tourism education presents unique challenges due to the practical, skills-based nature of the field. Studies highlight that while theoretical knowledge can be effectively delivered through digital platforms, hands-on training in kitchen labs, service simulations, and fieldwork remains difficult to replicate virtually (Price-Howard & Lewis, 2023). Simulation-based e-learning tools (Carabregu-Vokshi et al., 2024) have partially addressed these gaps, but students often report that online learning cannot fully replace real-world practice (Gill et al., 2022). This tension underscores the importance of identifying determinants that shape students' perception of e-learning effectiveness in hospitality and tourism programs.

2.2 Computer self-efficacy

Computer self-efficacy refers to students' confidence in their ability to use digital tools successfully (Azizi et al., 2022). In hospitality and tourism, digital skills are critical for tasks such as menu planning, cost calculation, and simulation-based training (Siew et al., 2021). Prior research shows that students with higher digital confidence experience less anxiety, greater engagement, and stronger academic persistence (Wolverton et al., 2020). In practice-oriented fields, self-efficacy may determine whether students are willing to embrace digital platforms beyond basic use, such as participating in interactive case studies or managing group projects through e-learning systems.

Hypothesis H1: Computer self-efficacy is positively associated with e-learning effectiveness

2.3 Perceived ease of use

Derived from the Technology Acceptance Model (Davis, 1989), perceived ease of use reflects the extent to which students believe using an e-learning system requires minimal effort. In user-centered learning environments, platforms that are intuitive and accessible increase students' motivation and persistence (Kim et al., 2022). For hospitality students, where focus should remain on content mastery and practical application rather than technical troubleshooting, seamless platforms reduce distractions and foster engagement (Ninsiana et al., 2022).

Hypothesis H2: Perceived ease of use is positively associated with e-learning effectiveness

2.4 Perceived usefulness

Perceived usefulness captures the belief that e-learning enhances academic performance and professional preparation (Nuryakin et al., 2023). Features such as real-time feedback, collaborative tools, and multimedia learning materials directly improve students' learning outcomes (Almaiah et al., 2021). In hospitality education, platforms perceived as useful provide simulations of real-world challenges—such as service management or customer interactions—bridging the gap between theory and practice (Price-Howard & Lewis, 2023).

Hypothesis H3: Perceived usefulness is positively associated with e-learning effectiveness

3 Methodology

This study adopted a quantitative, cross-sectional design to examine determinants of e-learning effectiveness among hospitality and tourism students. The target population consisted of 4,776 students enrolled in the Faculty of Hotel and Tourism Management at Universiti Teknologi MARA (UiTM) Cawangan Terengganu. Using Krejcie and Morgan's (1970) sampling table, a minimum sample size of 313 was required at a 95% confidence level with a 5% margin of error. A total of 318 valid responses were obtained, meeting the requirement for statistical representativeness. Participation was voluntary, and informed consent was obtained at the beginning of the survey. Ethical approval was secured from the faculty's Research Ethics Committee, ensuring the confidentiality and anonymity of respondents. The questionnaire consisted of five sections: demographic information, e-learning effectiveness, computer self-efficacy, perceived ease of use, and perceived usefulness. Measurement items were adapted from validated scales in previous studies: computer self-efficacy (Azizi et al., 2022), perceived ease of use and usefulness (Kim et al., 2022; Nuryakin et al., 2023), and e-learning effectiveness (Martin & Bolliger, 2018). All items were measured on a five-point Likert scale (1 = strongly

disagree to 5 = strongly agree). A pilot test (n = 30) was conducted, resulting in Cronbach's alpha values above 0.8, confirming internal consistency.

Table 1: Reliability Test

Construct	Cronbach's Alpha
Computer Self-Efficacy	0.863
Perceived Ease of Use	0.800
Perceived Usefulness	0.852

N=30

4 Findings and Discussion

4.1 Demographic Profile

Out of 318 respondents, 65.4% were female (n = 208), while 34.6% were male (n = 110). Most were aged 21–23 years (53.5%), followed by 18–20 years (37.4%), and 24 years and above (9.1%). In terms of program, 58.8% were degree students and 41.2% were diploma students.

Regarding preferred learning mode, blended learning was most popular (61.3%), followed by face-to-face (31.4%), and fully online learning (7.2%). Smartphones (85.9%) were the most common device used for e-learning, followed by laptops (65.3%) and tablets (47.2%). The most frequently used platforms were Google Classroom (28.5%), UFuture (14.2%), Google Meet (16.9%), Zoom (12.6%), and Microsoft Teams (11.5%).

4.2 Descriptive Analysis

Descriptive analysis, which uses means and standard deviations based on a five-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5), was used to measure each item in all dimensions of social influences, food preferences, and health considerations.

Objective 1: To identify the most influential factor contributing to the effectiveness of e-learning as perceived by the students

4.2.1 Computer Self-efficacy

Table 2: Descriptive Analysis for Self-efficacy

No	Items	Mean	SD
1	I can navigate e-learning platforms even without prior experience	4.26	0.782
2	I can use e-learning tools after a quick explanation	4.31	0.778
3	I can solve problems well by using e-learning tools	4.27	0.771
4	I am able to finish all related e-learning tasks without any assistance from others	4.21	0.892
5	I am confident in doing group work on e-learning platforms	4.26	0.869

Based on Table 2 above, the mean scores ranged from 4.21 to 4.31, indicating high confidence among students in using e-learning tools. The highest rated item was "I can

use e-learning tools after a quick explanation" (M = 4.31, SD = 0.778), showing that most students adapt quickly to digital platforms with minimal guidance. The lowest was "I am able to finish all related e-learning tasks without any assistance from others" (M = 4.21, SD = 0.892), suggesting that while confidence is high, some students may still need support in independent tasks.

4.2.2 Perceived Ease of Use

Table 3: Descriptive Analysis for Perceived Ease of Use

No	Items	Mean	SD
1	I find e-learning platforms easy to use	4.42	0.735
2	I understand how e-learning platforms work	4.40	0.741
3	E-learning is easy to use and learn	4.40	0.742
4	E-learning tools are straightforward to navigate	4.33	0.804
5	E-learning tools have interfaces that are easy for people to use	4.38	0.7521

Based on data tabulated in Table 3, the highest rated was *"I find e-learning platforms easy to use"* (M = 4.42, SD = 0.735), reflecting the strong user-friendliness of the platforms. Other items, such as *"I understand how e-learning platforms work"* (M = 4.40) and *"E-learning is easy to use and learn"* (M = 4.40) confirm that students do not face major technical barriers.

4.2.3 Perceived Usefulness

Table 4: Descriptive Analysis for Perceived Usefulness

No	Items	Mean	SD
1	E-learning services are helpful in achieving my academic goals	4.30	0.760
2	I am able to do my work faster using e-learning as compared to using traditional methods	4.31	0.836
3	E-learning platform helps me understand difficult topics in my studies more easily	4.34	0.782
4	The flexibility of e-learning platforms makes it easier to manage my academic responsibilities	4.35	0.771

Regarding Table 4, the highest score was *"The flexibility of e-learning platforms makes it easier to manage my academic responsibilities"* (M = 4.35, SD = 0.771), highlighting convenience and time management as key benefits. Students also agreed that e-learning helps them understand difficult topics more easily (M = 4.34).

4.2.4 Effectiveness of E-learning

Table 4 showed mean scores ranged from 4.24 to 4.35, reflecting strong agreement on the effectiveness of e-learning. The most highly rated was *"E-learning quizzes, discussions, and videos help me understand and retain information better"* (M = 4.35, SD

= 0.787). Slightly lower ratings were found for *"Clear and well-structured materials"* (M = 4.24) and *"Feedback methods help track progress"* (M = 4.25).

Table 4: Descriptive Analysis for Effectiveness of E-learning

No	Items	Mean	SD
1	The e-learning platform provides clear and well-structured learning materials	4.24	0.815
2	The flexibility of e-learning allows me to manage my study time effectively	4.30	0.812
3	E-learning quizzes, discussions, and videos help me understand and retain information better	4.35	0.787
4	The feedback methods in e-learning help me track my progress and improve my understanding	4.25	0.863
5	I am satisfied with the effectiveness of the e-learning system in achieving my academic goals	4.25	0.863

From the descriptive analysis, perceived ease of use recorded the highest overall mean values (up to 4.42) compared to the other factors. This indicates that students strongly agreed that the e-learning platforms were easy to use, intuitive, and accessible. Although perceived usefulness was also rated highly (up to 4.35), ease of use slightly outperformed it. This suggests that students' immediate experience with user-friendly interfaces has the greatest influence on their positive perception of e-learning. Meanwhile, computer self-efficacy also showed strong results but was slightly lower (max mean = 4.31). This implies that while students are confident in their technological abilities, their satisfaction and effectiveness judgments depend more on the platform's ease of use and usefulness rather than on their personal skill level.

4.3 Pearson Correlation Analysis

Objective 2: To examine the relationship between computer self-efficacy, perceived ease of use, and perceived usefulness with the effectiveness of e-learning

Table 5: Pearson Correlation Analysis

Variable	r-value	Sig. (p-value)
Computer Self-Efficacy vs Effectiveness	0.682	0.000
Perceived Ease of Use vs Effectiveness	0.721	0.000
Perceived Usefulness vs Effectiveness	0.739	0.000

The correlation analysis revealed significant and positive relationships between computer self-efficacy, perceived ease of use, perceived usefulness, and the effectiveness of e-learning. Computer self-efficacy showed a strong correlation with effectiveness ($r = 0.682$, $p < 0.01$), indicating that students who are more confident in using e-learning tools tend to perceive the platforms as more effective. This highlights the importance of digital competence in enhancing learning outcomes, as students who can navigate platforms and solve problems independently are better able to benefit

from online learning. Similarly, perceived ease of use was strongly correlated with e-learning effectiveness ($r = 0.721$, $p < 0.01$). This suggests that user-friendly and straightforward platforms contribute to positive learning experiences, as students who find the tools easy to navigate encounter fewer barriers and are more engaged. The strongest correlation was found between perceived usefulness and effectiveness ($r = 0.739$, $p < 0.01$), confirming that students who believe e-learning helps them achieve academic goals, manage responsibilities, and improve their understanding of difficult topics are more likely to evaluate it as effective. This finding aligns with the Technology Acceptance Model (TAM), which emphasizes perceived usefulness as a critical determinant of technology acceptance (Mastour et al. 2025).

5 Study Limitations and Future Research Directions

This study has several limitations that should be acknowledged. First, the research was conducted only among students from the Faculty of Hotel and Tourism Management at UiTM Cawangan Terengganu. While the findings provide useful insights into e-learning in the context of hospitality and tourism education, they may not be generalized to students from other faculties or institutions who may experience different challenges and learning environments. Second, the data were collected after 3 months of using the e-learning platform, which may be subject to social desirability bias or personal interpretation because some of the respondents may forget the experience. Third, the study focused only on three factors, which are computer self-efficacy, perceived ease of use, and perceived usefulness, while other potential influences, such as internet connectivity, teaching presence, learning motivation, or institutional support, were not included in the analysis. These omissions may limit the comprehensiveness of the findings.

Despite these limitations, the study opens opportunities for future research. Future studies could include students from other faculties or universities across Malaysia to provide more representative results and allow for comparative analysis between different disciplines. In addition, researchers may employ a mixed-method approach, combining surveys with interviews or focus groups, to capture deeper insights into students' perceptions and challenges in e-learning. Furthermore, expanding the framework to include additional variables, such as learning motivation, access to technology, quality of teaching materials, or instructor support, would provide a more holistic understanding of what drives e-learning effectiveness. Finally, longitudinal studies could be carried out to examine how students' perceptions of e-learning evolve over time, particularly as digital learning tools continue to develop and become more integrated into higher education.

6 Conclusion

Based on the findings, universities offering hospitality and tourism programs should prioritize a blended learning (BL) approach. While theoretical content can be effectively delivered online, practical courses should remain anchored in face-to-face formats such

as kitchen labs, simulations, and field-based activities. Institutions could design hybrid modules that combine online lectures and discussions with on-site skill development, ensuring that students benefit from both flexibility and hands-on experience.

Since perceived usefulness was identified as the strongest determinant of e-learning effectiveness, course design should focus on demonstrating the relevance of online learning to students' academic and career goals. This can be achieved by incorporating real-life case studies, industry-related tasks, and problem-based learning activities that enhance the practical value of e-learning. Moreover, the high ratings for perceived ease of use suggest that institutions should provide clear guidelines, structured navigation, and accessible resources will further improve students' learning experiences. Besides that, while computer self-efficacy showed slightly lower influence, it remains important to provide students with adequate training and technical support. Workshops, orientation sessions, and digital literacy programs can strengthen students' confidence in using e-learning tools independently.

In conclusion, this study found that computer self-efficacy, perceived ease of use, and perceived usefulness were all positively related to e-learning effectiveness among hospitality and tourism students. Among these factors, perceived usefulness was the most influential, showing that students value e-learning most when it directly supports their academic goals. The findings suggest that while technical confidence and user-friendly platforms are important, the usefulness of e-learning plays the greatest role in shaping students' perceptions of its effectiveness.

7 About the authors

Fathonah Mohd Azhar and Nur Zarith Abdul Majaid completed their final year of Bachelor of Science (Hons). Foodservice Management in the Faculty of Hotel and Tourism Management at Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Malaysia.

Siti Nurhanifah Sulong and Amir Manshoor are lecturers in the Culinary Arts Department, Faculty of Hotel and Tourism Management, Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Malaysia. Their research interests are gastronomy and heritage food.

Muhamad Shah Kamal Ideris is a lecturer at School of Tourism, Hospitality and Environmental Management, University Utara Malaysia (UUM), Kedah. His research interests focus on Hospitality, Culinary and Food Service Management.

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