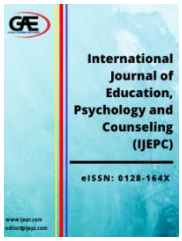
International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048



INTERNATIONAL JOURNAL OF EDUCATION, PSYCHOLOGY AND COUNSELLING (IJEPC)
www.ijepc.com

FACTORS INFLUENCING STUDENT SATISFACTION WITH ONLINE LEARNING INTERFACES IN CALCULUS COURSES

Fazillah Bosli[1], Mohd Rijal Ilias[2], Shahida Farhan Zakaria[3], Nur Syafizan Mohd Sufter[4*], Nora Baizura Mohd Isa[5]

[1] Mathematical Sciences Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Kedah Branch, Sungai Petani Campus, 08400 Merbok, Kedah, Malaysia
Email: fazillah@uitm.edu.my
[2] School of Mathematical Sciences, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia
Email: mrijal@uitm.edu.my
[3] Mathematical Sciences Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Kedah Branch, Sungai Petani Campus, 08400 Merbok, Kedah, Malaysia
Email: shahidafarhan@uitm.edu.my
[4] Mathematical Sciences Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Kedah Branch, Sungai Petani Campus, 08400 Merbok, Kedah, Malaysia
Email: nursyafizan@uitm.edu.my
[5] Mathematical Sciences Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Kedah Branch, Sungai Petani Campus, 08400 Merbok, Kedah, Malaysia
Email: norabaizura@uitm.edu.my
[*] Corresponding Author

Article Info:

Article history:
Received date: 14.01.2025
Revised date: 23.01.2025
Accepted date: 27.02.2025
Published date: 20.03.2025

To cite this document:

Bosli, F., Ilias, M. R., Zakaria, S. F., Suffer, N. S. M., & Isa, N. B. M. (2025). Factors Influencing Student Satisfaction With Online Learning Interfaces In Calculus Courses. *International Journal of Education, Psychology and Counseling, 10* (57), 742-755.

Abstract:

Advancements in technology have significantly transformed education towards online learning, especially for higher education institutions. However, the transition from conventional ways of face-to-face to online learning can affect students' satisfaction, particularly in online learning interfaces. An online learning platform's design, features, and usability are important factors that influence how students perceive and benefit from their education. Meanwhile, previous studies have explored online learning interfaces in general. Limited research has specifically addressed interfaces designed for calculus courses, requiring specialized tools such as graphing features, equation editors, and interactive problem-solving. Thus, this study aims to determine the relationship between three factors of Online Learning Self-Efficacy (OLSE), including learning, time management, and technology, and students' satisfaction with online learning interfaces. It also intended to identify the most significant factors influencing student satisfaction in online learning interfaces. A study involving 187 Diploma in Computer Science students who completed an online survey. The survey comprised an OLSE

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

DOI: 10.35631/IJEPC.1057048

questionnaire and an e-learning satisfaction questionnaire. Data was analyzed by using Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics, including means and standard deviations, were employed to summarize demographic data, while correlation analysis examined relationships between variables. Furthermore, regression analysis was used to identify the factors most significantly influenced students' satisfaction. The result revealed that self-efficacy in learning, time management, and technology significantly correlated with student satisfaction. These findings highlight that self-efficacy in time management is the factor that most influences students' satisfaction with online learning interfaces, particularly in the calculus course.

Keywords:

Online Learning, Learner Interface, Self-Efficacy.

Introduction

Online learning has become more necessary, particularly for higher education institutions, such as colleges and universities, to deliver flexible and accessible learning opportunities. The evolution of technology has substantially transformed educational methods, facilitating a transition to digital learning platforms. This shift has enabled students to access educational resources at any time and from any location if an electronic device is accessible. Online learning, also known as e-learning, virtual learning, or digital learning (Suhandiah et al., 2022), refers to the learning process conducted via the Internet and technology as a delivery method without the necessity for physical presence in a traditional classroom (Means et al., 2009). The change from conventional face-to-face learning to online learning impacts students' satisfaction and introduces new educational challenges, especially in sustaining students' engagement and satisfaction.

In implementing online learning platforms, evaluating students' satisfaction with online learning interfaces is important to assess effective learning and self-efficacy. Online learning interfaces refer to the interaction between a learner and the digital platforms that facilitate online learning to complete a specific task (Hillman et al., 1994). Various online teaching and learning tools are used in online education, including social media, Google Classroom, Massive Open Online Courses (MOOC), virtual classrooms (Zoom, Google Meet, Microsoft Teams), and other educational web applications. These interfaces provide students, educators, and learners with a user-friendly, interactive platform to engage with educational content, collaborate, and assess progress. The simplicity of using online learning platforms enhances students' self-efficacy, with higher usability positively correlated with increased confidence in utilizing technology for learning processes (Bailey et al., 2022). According to Meyer et al. (2015), a poorly designed user interface can lead to student distraction, increased stress, and a decline in the quality of outcomes during the e-learning process. This factor is also the reason for low student involvement in e-learning (Liu et al., 2020; Hanifa & Santoso, 2019).

Besides student satisfaction, self-efficacy is important in determining students' ability to manage online learning environments effectively. Higher self-efficacy levels are associated with increased learning satisfaction, motivation, and academic achievement. Bandura (1977) defines self-efficacy as an individual's belief in their ability to organize and execute the actions required to achieve specified performance goals. Self-efficacy in academics is crucial,

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

especially among university students, because it substantially impacts their attitude to learning, academic performance, and overall educational experience. University students with strong self-efficacy set higher goals and are more committed to achieving them because they believe they can succeed in academic tasks (Abdolrezapour et al., 2023). Hence, understanding the relationship between self-efficacy and student satisfaction is essential for improving online learning experiences. Findings by Ali (2021) showed that students were more confident in their ability to use Information and communications technology (ICT) for online learning but had a moderate level of self-efficacy to complete academic tasks in an online learning environment. Correspondingly, it can be concluded that self-efficacy for ICT use is a good predictor of academic self-efficacy for online courses.

The Malaysian Ministry of Higher Education (MOHE) has introduced several policies and guidelines to support and enhance university online learning, especially following the COVID-19 pandemic. Numerous studies have explored online learning interfaces in general. However, there is a lack of research investigating how these courses' specific interface features influence student satisfaction. Consequently, this research examines the relationship between the Online Learning Self-Efficacy (OLSE) factors, namely learning, time management, and technology, and students' satisfaction with online learning interfaces. Additionally, the study seeks to identify which of these self-efficacy factors most significantly influence students' satisfaction with online learning interfaces, particularly in calculus courses for Diploma in Computer Science students. Calculus is a foundational subject in Science, Technology, Engineering and Mathematics (STEM) education, serving as the basis for advanced studies in fields such as engineering, physics, computer science, and economics. Nonetheless, it is often perceived as challenging, leading to high failure rates and dropout among students. Student satisfaction with online learning interfaces is critical in overcoming these challenges.

Literature Review

Students' Satisfaction with Online Learning Interfaces

The rapid growth of online education in recent years, augmented by the COVID-19 pandemic, has led to the importance of effective online learning interfaces. A key element in determining the success of online education is student satisfaction with these interfaces, which includes aspects such as usability, design, interactivity, and overall user experience. The user interface design serves as the point of interaction between the user and the software. It plays a crucial role in shaping the success of an e-learning system implementation. Research has shown that students and lecturers prefer simple and interactive interfaces, leading to quick task completion and satisfaction. Moreover, the learnability of e-learning user interface design also positively affects user satisfaction (Senevirathne & Manathunga, 2021).

Usability is another significant factor in the satisfaction of online learning interfaces. Usability refers to the ability to use the system in an easy manner (Davids et al., 2014). E-learning usability studies require the involvement of real end-users. An empirical usability study on specific e-learning tools found that end users without Human-Computer Interaction knowledge tend to be more satisfied as they have higher expectations regarding the tool (Alelaiwi & Hossain, 2015). Students' online learning experiences during the COVID-19 pandemic showed they were most satisfied with Google Hangouts for lecture delivery, followed by Google Classroom and Moodle for course management and assessments (Almusharraf & Khahro, 2020). In addition, students have a high level of satisfaction using Zoom compared to Google

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

Meet, Teams, and Webex as the digital platform during the online learning process since it offers excellent HD quality, supports a large number of students, and can view more than one video at a time in one view (Nainggolan, 2021).

Online Learning Self-Efficacy - Learning

OLSE refers to students' belief in their ability to successfully engage with and complete tasks in an online learning environment. Self-efficacy plays a significant role in online learning outcomes, influencing students' motivation, engagement, persistence, and performance. During the COVID-19 pandemic, students faced many difficulties in online learning, such as internet connectivity, an overload of lesson activities, and a lack of resources necessary for online classes. However, the findings indicated that they maintain high self-efficacy and are academically motivated (Fulgencio et al., 2021). Since self-efficacy is linked to a particular behavior, high OLSE students are more assured of finishing online courses, effectively managing their time, and using the required web-based and computer-based tools (Shen et al., 2013; Zhou & Yu, 2021; Sufter et al., 2024). Moreover, students more involved in virtual classes had higher levels of OLSE since they were more likely to approach challenging assignments with greater effort and determination (Wu, 2023). The proliferation of computer-based technology, coupled with the increase in web and internet technology use, has prompted researchers to examine the unique self-efficacy in virtual learning environments (Gautam et al., 2020; Kuo et al., 2021).

Online Learning Self-Efficacy - Time Management

Time management is crucial for successful online learning, as students must effectively allocate time for studying, completing assignments, and engaging in online discussions. A lack of self-efficacy in time management can result in procrastination, lower performance, and higher stress levels for students. According to Jiang et al. (2023), in online learning, students' low self-efficacy in time management may include ineffective supervision, lack of self-motivation, poor self-monitoring, deficient time management skills, and distractions from the learning environment. In addition, Ma et al. (2024) also investigated that male student had lower self-efficacy in time management compared to female students. This is why researchers like Zimmerman et al. (1996), Terry and Doolittle (2008), and others developed a strategy program aimed at helping students create time management strategies applicable to both online and traditional learning. Zimmerman and Kitsantas (2005) noted that self-regulated learners with high self-efficacy tend to exhibit stronger time management skills and achieve better academic performance.

Online Learning Self-Efficacy – Technology

According to Pan (2020), technology self-efficacy refers to the capability of students to use technology tools in online learning either independently or with help. Rahman et al. (2023) stated that technology self-efficacy can enhance students' confidence in achieving learning objectives, which includes identifying their learning needs, finding resources, setting learning goals, and choosing learning strategies. In addition, Ma et al. (2024) reported in their research that a high level of self-efficacy was observed regarding the technology used in fully online learning, with students expressing confidence in their ability to navigate and use technological tools and platforms for educational purposes. Research from Artino (2008) noted that students who possess greater self-efficacy in computer-based learning tend to report higher levels of satisfaction with their learning experiences. Furthermore, research has shown that

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

technological self-efficacy positively and significantly impacts students' preparedness for online learning (Wolverton et al., 2020).

Conceptual Framework

The conceptual framework shows the variables considered in this study, specifically self-efficacy in learning, time management, technology use, and student satisfaction with online learning interfaces. Figure 1 illustrates the relationship between students' self-efficacy in online learning and their satisfaction with learning interfaces.

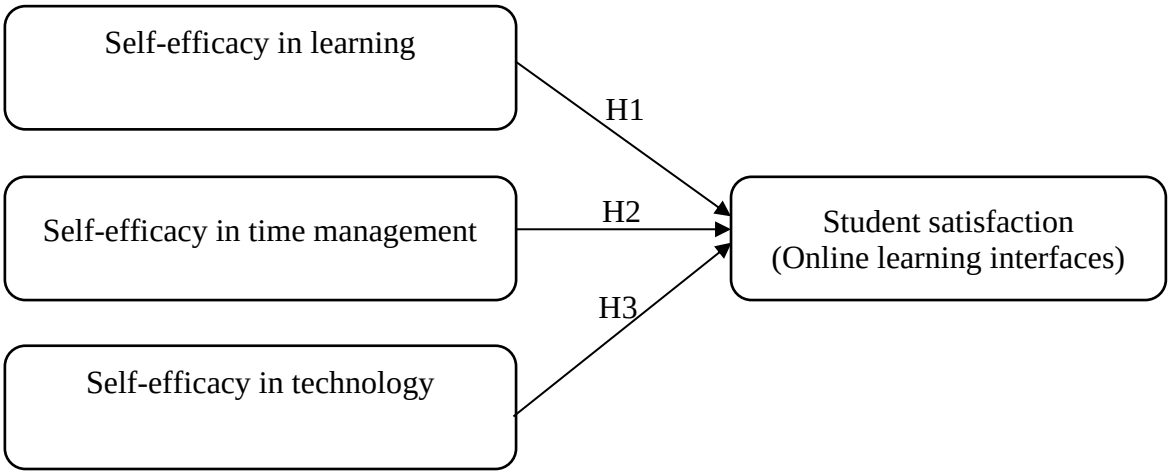


Figure 1: Conceptual Framework

The Present Study

This study aims to identify the relationship between self-efficacy focused on three factors (learning, time management, and technology) and students' satisfaction with online learning interfaces. Furthermore, it also identifies which self-efficacy factors influence learning interface satisfaction the most. The findings of the analysis address the following research questions:

RQ 1: Is there any relationship between self-efficacy in learning and student satisfaction with online learning interfaces?

RQ 2: Is there any relationship between self-efficacy in time management and student satisfaction with online learning interfaces?

RQ 3: Is there any relationship between self-efficacy in technology and student satisfaction with online learning interfaces?

RQ 4: What is the most significant self-efficacy factor influencing student satisfaction with online learning interfaces?

The researcher developed three null hypotheses for this study based on the three factors of OLSE (learning, time management, and technology) in the OLSE questionnaire. The summary of the hypothesis statement is as follows:

H 1: There is a significant relationship between students' self-efficacy in learning and their satisfaction with online learning interfaces.

H 2: There is a significant relationship between students' self-efficacy in time management and their satisfaction with online learning interfaces.

H 3: There is a significant relationship between students' self-efficacy in technology and their satisfaction with online learning interfaces.

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

Methodology

Data were collected using structured survey questionnaires and analyzed with the Statistical Package for the Social Sciences (SPSS). In this study, the independent variables include OLSE concerning learning aspects, time management, and technology use, while the dependent variable is students' satisfaction with online learning interfaces. Based on Krejcie and Morgan's (1970) sample size formulas, 187 respondents were selected from a population of 367 Diploma in Computer Science students enrolled in Calculus courses at Universiti Teknologi MARA, Kedah Branch.

Instrument

The questionnaire employed in this study was adapted from Zimmerman and Kulikowich (2016) for assessing an OLSE and from Wang (2003) for evaluating e-learning satisfaction and comprises two sections. The first section gathers demographic information from respondents, such as gender, current semester, and whether they have prior experience with online learning. The second section contains 27 items rated on a 5-point Likert scale, ranging from strongly disagree to strongly agree. This section measures respondents' levels of agreement across four variables: online learning interfaces, self-efficacy in learning, self-efficacy in time management, and self-efficacy in technology. The survey was completed online using Google Forms. Before conducting the analysis, the instrument needs to be tested for reliability and normality test. Subsequently, quantitative data analysis will be conducted using SPSS, beginning with descriptive analysis. This includes mean, standard deviation, and frequency distribution to provide an overview of the respondents' demographics, online learning experiences, and each variable related to this study. Next, the analysis evaluates the self-efficacy factors that influence student satisfaction with online learning interfaces.

Analysis, Discussion, and Findings

In this discussion, the findings from the questionnaire analysis are highlighted. The data collected from 187 respondents were analyzed using SPSS. The results indicate that the learner interface is positively influenced by self-efficacy.

Reliability

The reliability of the questionnaire was assessed by examining the internal consistency of the items representing each factor using Cronbach's alpha. Cronbach's alpha measures internal consistency, indicating how closely related a set of items is as a group. Other than that, Cronbach's alpha can be expressed as a function of the number of test items and the average intercorrelation between the items. For conceptual clarity, the formula for Cronbach's alpha, α is presented below:

$$\alpha = \frac{N\bar{c}}{\bar{v}\,(N-1)\bar{c}}$$

where
N = number of items
$\bar{c}$ = the average inter-item covariance among the items
$\bar{v}$ = the average variance

Table 1 provides Cronbach's alpha values to confirm the reliability of the questionnaire. These results indicate that the instrument is reliable and valid, with alpha values in the range of 0.58–

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

0.97 (Taber, 2018). The internal consistency was found to be satisfactory, with values of 0.925, 0.936, 0.892, 0.968, and 0.972 for online learning interfaces, self-efficacy in learning, self-efficacy in time management, and self-efficacy in technology, respectively.

Table 1: Reliability Test

Variables	No of Items	Cronbach's alpha	Cronbach's alpha Item deleted
Online Learning Interfaces	5	0.925	0
Self-efficacy in learning	10	0.936	0
Self-efficacy in time management	5	0.892	0
Self-efficacy in technology	7	0.968	0
All items	27	0.972	0

Descriptive Statistics

Table 2 indicates the demographic profiles of the 187 students. Based on Table 2, the majority of the students are male, 57.2%, while 42.8% are female. Meanwhile, 62% of the students studied in semester 2, and another 38% came from semester 4. All the students have experienced online learning in their study lives.

Table 2: Demographic profile of the students (n=187)

Variables	Frequency	Percentage (%)
Gender		
Male	107	57.2
Female	80	42.8
Total	187	100
Semester		
2	116	62
4	71	38
Total	187	100
Have experience in online learning		
Yes	187	100
No	0	0
Total	187	100

Table 3 shows the mean for each variable item that represents the average response across all respondents, comparing their opinions. The overall mean score of constructs under self-efficacy in learning was 3.70 ± 0.934 on the 5-point Likert scale. The majority of students have a high perception for 9 items and have a moderate perception for 1 item asked in the questionnaire, which is "I can learn without a physical presence in the classroom." The overall mean for self-efficacy in time management items was 3.67 ± 0.848. It indicates that most students agreed with all statements regarding self-efficacy in time management on online learning content, with the highest rating item being "I can meet deadlines with few reminders." Meanwhile, the overall mean score for self-efficacy in technology was 4.02 ± 0.83. It shows a high perception that most of the students agreed with all statements that relate to self-efficacy in technology. The topmost rating is "I can use the internet to find the answer to a course-related question." Aside from that, the overall mean score for online learning interfaces is 3.80 ± 0.939. The results show that most students agreed that the online learning

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

interface is easy to use, satisfying, user-friendly, and reliable. Overall, the level of self-efficacy in learning, time management, technology, and online learning interfaces was high.

Table 3: Level of Online Learning Interfaces, Self-efficacy in Learning, Technology and Time Management

Item	Mean (μ)	Standard deviation	Interpretation
A1	3.89	0.929	High
A2	4.01	0.915	High
A3	3.63	0.955	High
A4	3.83	0.898	High
A5	3.65	1.00	High
Online Learning Interfaces	3.80	0.939	High
B1	3.79	0.839	High
B2	3.66	0.868	High
B3	3.96	0.879	High
B4	3.36	1.153	Moderate
B5	3.58	1.051	High
B6	3.76	0.849	High
B7	3.55	1.011	High
B8	3.97	0.918	High
B9	3.71	0.876	High
B10	3.68	0.893	High
Self-efficacy in Learning	3.70	0.934	High
C1	3.56	0.951	High
C2	3.71	0.798	High
C3	3.86	0.773	High
C4	3.45	0.929	Moderate
C5	3.76	0.789	High
Self-efficacy in Time management	3.67	0.848	High
D1	3.98	0.789	High
D2	3.95	0.834	High
D3	3.98	0.852	High
D4	4.06	0.818	High
D5	4.06	0.844	High
D6	4.09	0.825	High
D7	4.03	0.848	High
Self-efficacy in Technology	4.02	0.83	High

Based on the results from the questionnaire, means and standard deviations between the variables are shown in Table 4. The results reveal that by calculating the mean for each independent variable, self-efficacy in technology has the highest mean score (μ= 4.02), suggesting that the participants perceive this factor as the most influential in online learning. Self-efficacy in learning follows with a mean score of μ = 3.70, indicating moderate agreement with its impact on online learning interfaces. Lastly, self-efficacy in time management has the lowest mean score (μ = 3.66), implying that it is considered the least influential of the three factors. These results suggest a ranking of influence, with self-efficacy in technology being the most significant, followed by learning and time management. Note that descriptive analysis for

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

the results emphasized the contribution of items to each variable. This directly and indirectly explains the influences between the variables and is used to support the results of the hypothesis.

Table 4: Mean for each Group Variables.

Variables	Mean (μ)	Standard Deviation
Online Learning Interfaces	3.80	0.82
Self-efficacy in Learning	3.70	0.74
Self-efficacy in Time management	3.67	0.71
Self-efficacy in Technology	4.02	0.76

Correlation Analysis

Pearson correlation analysis was used in this study to measure the relationships between variables. The strength of the association between the independent and dependent variables was measured. The Pearson's correlation coefficient (r) can be calculated using the formula given below:

$$r = \frac{\sum(X_i-\bar{X})(Y_i-\bar{Y})}{\sqrt{(X_i-\bar{X})^2}\sqrt{(Y_i-\bar{Y})^2}}, -1 \leq r \leq 1$$

where

$\bar{X}$= sample mean of X, and
$\bar{Y}$= sample of mean Y.

Table 4 displays the correlations between the independent variables: self-efficacy in learning, time management, and technology, and the dependent variable, online learning interfaces. The results showed significant correlations between each independent variable and online learning interfaces. Correlation values of 0.752, 0.748, and 0.720 indicate a relatively high positive relationship among these variables.

Table 5: Correlations between Independent Variables and Dependent Variable.

Variables	Online learning interfaces	Self-efficacy (Learning)	Self-efficacy (Time management)	Self-efficacy (Technology)
Online learning interfaces	1	0.752**	0.748**	0.720**
Self-efficacy Learning	0.752**	1	0.767	0.744
Self-efficacy Time management	0.748**	0.767	1	0.703
Self-efficacy Technology	0.720**	0.744	0.703	1

** *At the 0.01 level, the correlation is significant.*

Analysis of Variance (ANOVA)

Table 6 presents that the R^2 value indicates that 66.4% of the variance in the online learning interfaces can be accounted for by self-efficacy in learning, time management, and technology. The remaining 33.6% is attributed to factors not covered in this research.

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

Table 6: Model Summary

Model	R	R^2	Adjusted R^2
1	0.815	0.664	0.659

Table 7 displays the model summary by one-way ANOVA ($F(3,183) = 120.608$, $p < 0.001$). This result demonstrates that the regression model is appropriate, and the independent variables are influential in explaining the variance in the dependent variable.

Table 7: ANOVA

Model	Sum of squares	df	Mean square	F	Sig.
Regression	84.049	3	28.016	120.608	<0.001
Residual	42.510	183	0.232		
Total	126.559	186			

a. Dependent variable: Online Learning Interfaces.
b. Predictors: (Constant), Self-efficacy in Learning, Self-efficacy in Time Management, and Self-efficacy in Technology.

Regression Analysis

This study used multiple regression analysis to estimate the relationship between the dependent variable (online learning interface satisfaction) and the independent variables (self-efficacy in learning, self-efficacy in time management, and self-efficacy in technology). The results in Table 8 indicate that all independent variables significantly influence the students' satisfaction with online learning interfaces, as evidenced by the significance values being less than 0.05 for each independent variable. Specifically, a 1% increase in self-efficacy in learning, time management, and technology corresponds to a 0.336%, 0.383%, and 0.283% increase in online learning interfaces, respectively. The highest standardized coefficient (beta) is observed for self-efficacy in time management ($\beta = 0.330$), followed by self-efficacy in learning ($\beta = 0.305$) and self-efficacy in technology ($\beta = 0.261$). This suggests that self-efficacy in time management has the strongest effect on the learning interface. All three independent variables are statistically significant predictors of the learner interface.

The regression model can be expressed as:

$$\hat{Y} = 0.015 + 0.336X_1 + 0.383X_2 + 0.283X_3$$

Table 8: Coefficients

Model	Unstandardized Coefficient		Standardized Coefficients	t-value	*p*-value
	B	Std. Error	(β)		
(constant)	0.015	0.204		0.074	0.941
Self-efficacy in learning	0.336	0.082	0.305	4.079	<0.001
Self-efficacy in time management	0.383	0.081	0.330	4.700	<0.001
Self-efficacy in technology	0.283	0.073	0.261	3.877	<0.001

a. Dependent variable: Online Learning Interfaces.

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

Confirmation of Hypothesis

Table 9 provides a summary of the overall results of this research study. The findings indicate that all hypotheses were accepted, as the p-values for each variable were less than the 0.05 level of significance. Consequently, the result demonstrates that all independent variables have a significant positive effect on the online learning interface.

Table 9: Summarize Hypothesis Result.

	Hypotheses	Decision
H1:	There is a significant relationship between students' self-efficacy in learning and their satisfaction with online learning interfaces.	Accepted
H2:	There is a significant relationship between students' self-efficacy in time management and their satisfaction with online learning interfaces.	Accepted
H3:	There is a significant relationship between students' self-efficacy in technology and their satisfaction with online learning interfaces.	Accepted

Conclusion

All three factors of self-efficacy significantly influenced students' satisfaction with online learning interfaces. The findings indicate that self-efficacy in learning, time management, and technology were strongly correlated with students' satisfaction with online learning interfaces. Among all the factors, self-efficacy in time management is the most significant variable influencing students' satisfaction with online learning interfaces. These findings are consistent with a previous study by Al-Azawei et al. (2017), assessing that when online learning platforms are user-friendly, students' learning experiences will improve, thus increasing their satisfaction. Consequently, user-friendly features also contribute to the effectiveness of platform use in online learning environments. Other research regarding time management is done by Samavi (2022), which is consistent with previous studies (Honicke & Broadbent, 2016; Yokoyama, 2019; Zhao et al., 2021). Samavi (2022) determined that time management and academic self-efficacy positively and significantly predicted students' academic performance in e-learning. Note that committed and regular time management can lead to an increase in academic performance. In conclusion, satisfaction with online learning interfaces plays a pivotal role in enhancing self-efficacy in time management.

In the future, our findings can help instructors and the education sector develop strategies to improve students' self-efficacy in adapting to the online learning environment. Higher education institutions can also improve lecturers' skills through training programs to improve their ability to manage online classes more interactively, academically, and socially. Support for a good and structured online learning system is needed to encourage readiness and collaboration. A user-friendly online learning interface is key to this process, as it promotes engagement, supports real-time communication, and accommodates different learning styles. By focusing on these elements, institutions can help students feel more confident and achieve greater success in the online classroom.

Acknowledgment

The authors would like to thank all those who participated in and assisted with this study

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

References

Abdolrezapour, P., Jahanbakhsh Ganjeh, S., & Ghanbari, N. (2023). Self-efficacy and resilience as predictors of students' academic motivation in online education. *Plos one, 18*(5), e0285984. https://doi.org/10.1371/journal.pone.0285984

Alelaiwi, A. & Hossain, M. S. (2015). Evaluating and testing user interfaces for e-learning system: blackboard usability testing. *Journal of Information Engineering and Applications*, 5 (1), 23-31.

Ali, S. (2021). E-Learners' Self-Efficacy for Online Courses: Self-Efficacy for It Use as a Predictor for Academic Self-Efficacy. *Pakistan Journal of Distance and Online Learning*, *7*(2), 87-104.

Almusharraf, N., & Khahro, S. (2020). Students satisfaction with online learning experiences during the COVID-19 pandemic. *International Journal of Emerging Technologies in Learning (iJET)*, *15*(21), 246-267. https://doi:10.3991/ijet.v15i21.15647

Al-Azawei, A., Parslow, P., and Lundqvist, K. (2017). Investigating the effect of learning styles in a blended e-learning system: An extension of the technology acceptance model (TAM). *Australasian Journal of Educational Technology*, *33*(2). https://doi.org/10.14742/ajet.2741

Artino, A. R. (2008). Motivational beliefs and perceptions of instructional quality: Predicting satisfaction with online training. *Journal of computer assisted learning*, *24*(3), 260-270. https://doi.org/10.1111/j.1365-2729.2007.00258.x

Bailey, D. R., Almusharraf, N., & Almusharraf, A. (2022). Video conferencing in the e-learning context: explaining learning outcome with the technology acceptance model. *Education and Information Technologies*, 27(6), 7679–7698. https://doi.org/10.1007/s10639-022-10949-1

Bandura, A. (1977). *Self-efficacy: Toward a unifying theory of behavioral change*. *Psychological Review*, 84(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Davids, M. R., Chikte, U. M., & Halperin, M. L. (2014). Effect of improving the usability of an e-learning resource: A randomized trial. *Advances in physiology education*, *38*(2), 155-160. https://doi:10.1152/advan.00119.2013.

Fulgencio, L., Baldado, K., Enriquez, C., Mae, A., & Tus, J. (2021). Amidst the online learning in the Philippines: The self-efficacy and academic motivation of the senior high school students from private schools. *International Journal of Advance Research and Innovative Ideas in Education*, *7*(3).

Gautam, V., Khandelwal, S., & Dwivedi, R. (2020). The Impact of Self-Efficacy and Need for Achievement on Management Students' Perceptions Regarding Web Based Learning Resources. *International Journal of Education and Development using Information and Communication Technology*, *16*(2), 68-83.

Hanifa, M. R., & Santoso, H. B. (2019). Evaluation and recommendations for the instructional design and user interface design of Coursera MOOC platform. *International Conference on Advanced Computer Science and Information Systems (ICACSIS*), 417–424. 10.1109/ICACSIS47736.2019.8979689

Hillman, D. C., Willis, D. J., & Gunawardena, C. N. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *American Journal of Distance Education*, *8*(2), 30-42. https://doi.org/10.1080/08923649409526853

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational research review*, *17*, 63-84. https://doi.org/10.1016/j.edurev.2015.11.002

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

Jiang, X., Zhang, H., Wang, T., & Zhang, C. (2023). The association of self-control, self-efficacy, and demographic characteristics with home-based E-learning behavior in nursing and midwifery undergraduates: a cross-sectional study under the COVID-19 epidemic. *Nurse Education Today*, *120*, 105628. https://doi.org/10.1016/j.nedt.2022.105628

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610. https://doi.org/10.1177/001316447003000308

Kuo, T. M., Tsai, C. C., & Wang, J. C. (2021). Linking web-based learning self-efficacy and learning engagement in MOOCs: The role of online academic hardiness. *The Internet and Higher Education*, *51*, 100819. https://doi.org/10.1016/j.iheduc.2021.100819

Liu, S., Liang, T., Shao, S., & Kong, J. (2020). Evaluating localized MOOCs: The role of culture on interface design and user experience. *IEEE Access*, *8*, 107927-107940. 10.1109/ACCESS.2020.2986036

Ma, X., Zhang, H., Zhou, X., & Bo, L. (2024). Investigating the learning self-efficacy of a fully online teaching environment among undergraduate Chinese medical students: a cross-sectional study. *BMC Medical Education*, *24*(1), 912. https://doi.org/10.1186/s12909-024-05890-5

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.

Meyer, R., Gaskill, M., & Vu, P. (2015). Rating user interface and universal instructional design in MOOC course design. *International Journal of Technologies in Higher Education*, *12*(1-2), 62-74. https://doi.org/10.18162/ritpu-2015-v12n12-07

Nainggolan, S. (2021). Evaluating of digital platforms related online learning during Covid-19 pandemic: Students' satisfaction view. *AL-ISHLAH: Jurnal Pendidikan*, 13(2), 1358-1365. https://doi.org/10.35445/alishlah.v13i2.912

Pan, X. (2020). Technology acceptance, technological self-efficacy, and attitude toward technology-based self-directed learning: learning motivation as a mediator. *Frontiers in Psychology*, *11*, 564294. https://doi.org/10.3389/fpsyg.2020.564294

Rahman, M. K., Bhuiyan, M. A., Mainul Hossain, M., & Sifa, R. (2023). Impact of technology self-efficacy on online learning effectiveness during the COVID-19 pandemic. *Kybernetes*, *52*(7), 2395-2415. https://doi.org/10.1108/K-07-2022-1049

Samavi, S. A. (2022). Relationship between time management behaviors and self-efficacy with academic performance in e-learning environment. *Iranian Journal of Educational Research*, *1*(1), 59-66. https://doi.org/10.52547/ijer.1.1.59

Senevirathne, G., & Manathunga, K. (2021). Impact of e-learning system user interface design on user satisfaction. *IEEE 9th Region 10 Humanitarian Technology Conference (R10-HTC)*, 01-06. 10.1109/R10-HTC53172.2021.9641570

Shen, D., Cho, M. H., Tsai, C. L., & Marra, R. (2013). Unpacking online learning experiences: Online learning self-efficacy and learning satisfaction. *The Internet and Higher Education*, *19*, 10-17. http://dx.doi.org/10.1016/j.iheduc.2013.04.001

Sufter, N. S. M., Isa, N. B. M., Bosli, F., Ilias, M. R., & Zakaria, S. F. (2024). Investigating The Relationship Between Self-Efficacy and Students' Learning Satisfaction With The Online Learning Environment. InternationalJournal of Education, Psychology and Counseling, 9(55), 855-867. https://doi.org/10.35631/IJEPC.955057

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 742-755
DOI 10.35631/IJEPC.1057048

Suhandiah, S., Suhariadi, F., Yulianti, P., Wardani, R., & Muliatie, Y. E. (2022). Online learning satisfaction in higher education: what are the determining factors? *Cakrawala Pendidikan*, *41*(2), 351-364. https://doi.org/10.21831/cp.v41i2.35724

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in science education*, *48*, 1273-1296. https://doi.org/10.1007/s11165-016-9602-2

Terry, K. P., & Doolittle, P. E. (2008). Fostering self-efficacy through time management in an online learning environment. *Journal of Interactive Online Learning*, *7*(3), 195-207.

Wang, Y. S. (2003). Assessment of learner satisfaction with asynchronous electronic learning systems. *Information & management*, *41*(1), 75-86. https://doi.org/10.1016/S0378-7206(03)00028-4

Wolverton, C. C., Hollier, B. N. G., & Lanier, P. A. (2020). The impact of computer self-efficacy on student engagement and group satisfaction in online business courses. *Electronic Journal of E-learning*, *18*(2), pp175-188. https://doi.org/10.34190/EJEL.20.18.2.006

Wu, R. (2023). The relationship between online learning self-efficacy, informal digital learning of English, and student engagement in online classes: the mediating role of social presence. *Frontiers in psychology*, *14*, 1266009. https://doi.org/10.3389/fpsyg.2023.1266009

Yokoyama, S. (2019). Academic self-efficacy and academic performance in online learning: A mini review. *Frontiers in psychology*, *9*, 2794. https://doi.org/10.3389/fpsyg.2018.02794

Zhao, Y., Zheng, Z., Pan, C., & Zhou, L. (2021). Self-esteem and academic engagement among adolescents: A moderated mediation model. *Frontiers in psychology*, *12*(6), 1-9. https://doi.org/10.3389/fpsyg.2021.690828

Zhou, J., &Yu, H. (2021). Contribution of social support to home-quarantined Chinese college students' well-being during the COVID-19 pandemic: the mediating role of online learning self-efficacy and moderating role of anxiety. *Social Psychology of Education*, 24(6), 1643–1662. https://doi.org/10.1007/s11218-021-09665-4

Zimmerman, B. J., & Kitsantas, A. (2005). Homework practices and academic achievement: The mediating role of self-efficacy and perceived responsibility beliefs. *Contemporary educational psychology*, *30*(4), 397-417. https://doi.org/10.1016/j.cedpsych.2005.05.003

Zimmerman, B. J., Bonner, S., & Kovach, R. (1996). *Developing self-regulated learners*. American Psychological Association (APA).

Zimmerman, W. A., & Kulikowich, J. M. (2016). Online learning self-efficacy in students with and without online learning experience. *American Journal of Distance Education*, *30*(3), 180-191. https://doi.org/10.1080/08923647.2016.1193801