

# Exploring Technology Acceptance and Social Media Addiction: Effects on Academic Success Among International University Students

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## Abstract

This research aims to study the effects of technology acceptance and social media addiction on the academic achievement of international university students. Data were collected via online questionnaires from a sample of 556 students. Data were collected from 556 students and analyzed using Exploratory Factor Analysis (EFA), correlation, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM). Model fit was acceptable ( $X^2/df = 1.10$ ;  $p = 0.10$ ; GFI = 0.96; AGFI = 0.94; NFI = 0.97; IFI = 1.00; CFI = 1.00; RMSEA = 0.01), with maximum likelihood estimation. The results of the research found that security and privacy and perceived behavioral control had a positive impact on perceived usefulness. Self-efficacy and perceived behavioral control had a positive effect on perceived ease of use. In addition, perceived usefulness had a positive impact on online social media addiction and academic success; and perceived ease of use had a positive effect on academic success. However, the data analysis showed that perceived ease of use had a negative effect on online social media addiction. Furthermore, security and privacy did not affect perceived ease of use, self-efficacy did not affect perceived usefulness, and perceived ease of use did not affect perceived usefulness. The study concludes that perceived usefulness, perceived ease of use, and online social media addiction are positively associated with academic success, suggesting that students who view social media as academically useful may paradoxically become more dependent on it for learning and non-learning purposes.

*Keywords:* technology acceptance, online social media addiction, academic success, perceived usefulness, perceived ease of use

## Introduction

Social media is an online channel through which people in society, whether individuals or groups, can communicate or talk to others on virtual platforms, sharing information, images, videos, opinions, or feelings quickly and instantly (Purnama & Asdlori, 2023). The popularity of social media usage is a result of the use of the Internet, which has become an unavoidable necessity for everyone's life and is an important communication tool for interacting, creating different dimensions of communication among various groups of people. Recent empirical evidence indicates that social networks are increasingly popular among adolescents (Pellegrino et al., 2022). The new normal after the COVID-19 pandemic, social media use has become an important part of everyday life, especially for children and adolescents (Pellegrino et al., 2022). Social media is a virtual space on the Internet that facilitates real-time interaction, connection, and communication. It is a social means that connects people and is a space used for social communication and entertainment, sharing ideas, learning new things, building business networks, and starting collaborative projects (Malesev & Cherry, 2021). As people spend more time on social media, it leads to social media addiction (Pellegrino et al., 2022).

Social media addiction is a form of Internet addiction in which individuals are seen as using social media more than necessary (Starcevic, 2013). From the study of past

literature, it was found that the Technology Acceptance Model that occurred contributed to social media addiction. This is because the acceptance of technology leads to users' perception of the benefits and ease of use resulting in increased social media use (Rauniar et al., 2014). While social media has become an integral tool in higher education, its role is double-edged, simultaneously enabling academic engagement and fostering addictive tendencies. Prior research has often emphasized general adoption outcomes, yet less attention has been paid to how acceptance mechanisms may paradoxically contribute to compulsive usage and diminished academic performance, particularly among international students in post-COVID learning environments (Chowdhury & Begum, 2025). Therefore, social media addiction has become a concern, especially the possible effects, both harmful and beneficial. Most research tends to study the harmful use of social media to find ways to prevent it, such as He et al. (2017) and Cheng et al. (2021). Social media addiction in the educational circle is considered to have a serious impact because it is related to academic performance and future achievement, as well as related to the application of knowledge gained to further study, work, or daily life which will have a severe and continuous impact on life.

From the review of past literature which was about social media use and addiction, there was the study of Wilson and team (Wilson et al., 2010) whose research

was related to the study of the causes, consequences, and solutions of social media addiction, in which Landa-Blanco et al. (2024) explored the relationship between social media addiction and academic engagement in university students. The study of Malak et al. (2022) emphasized the complex relationship between social media addiction, psychological well-being, and academic engagement. In Thailand, studies such as Kulsawat and Narkwatchara (2021) and Kandeet et al. (2022) investigated the relationship and influence of social media addiction with other variables. Building on the Technology Acceptance Model (TAM), this study incorporates additional constructs—security/privacy concerns, self-efficacy, and perceived behavioral control—recognized as salient in post-COVID social media environments. Prior studies have largely focused on TAM's core determinants of usefulness and ease of use, yet overlooked how privacy concerns, users' confidence in managing technology, and their perceived control over behavior interact with adoption and addictive outcomes (Dhagarra et al., 2020). By integrating these dimensions, our framework extends TAM to capture the nuanced interplay between acceptance and problematic usage. Notably, this study anticipates several pathways that may diverge from conventional TAM expectations. For example, perceived usefulness of social media may inadvertently foster greater dependence, as students who view these platforms as academically valuable are also more likely to spend excessive time on them. Conversely, ease of use may reduce addictive tendencies, as efficient engagement could minimize compulsive usage. Similarly, the typical link between ease of use and usefulness may not hold in contexts where students rely on social media regardless of its complexity. Highlighting these potential anomalies underscores the need to reconsider TAM's assumptions in the realm of social media addiction. Therefore, this research applied the Technology Acceptance Model, along with other variables (e.g., security & privacy, self-efficacy, and perceived behavioral control) that affect social media addiction and academic success from international student context. Due to, international university students represent a unique population, as they rely heavily on social media for academic collaboration, cross-cultural communication, and maintaining social connections across borders. The post-COVID shift to hybrid learning further amplifies both the utility and the risks of social media in this context, yet empirical research remains scarce. Addressing this gap provides valuable insights into how technology acceptance and addiction jointly shape academic success in multicultural higher education settings. The primary objective of this study is to examine how technology acceptance factors (perceived usefulness, perceived ease of use, self-efficacy, security and privacy, and perceived behavioral control)

influence social media addiction and, in turn, academic success. The secondary objective is to test the mediating role of online social media addiction in linking TAM constructs with academic success. The data were collected from students at Asia-Pacific International University, a higher education institution in Thailand. The research findings will be used to encourage and support students to change their social media usage behavior to suit their learning methods in order to achieve academic success, which is beneficial to them to graduate on time. The findings also contribute to enhancing knowledge and supporting past literature and serve as a guideline for further studies in the future.

## ■ Literature Review

### Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed by Davis (1989) to describe and predict user behavior toward technology adoption. The theory is adapted from the Theory of Reasoned Action (TRA) which is designed for modeling the acceptance of information systems and technology users. The main purpose of the TAM is to explain the determinants of computer acceptance in general and explain user behavior across end-user and user-oriented computing technologies. The TAM model has two main variables (Aljarrah et al., 2016) to describe the acceptance and use of new technologies by users: 1) perceived usefulness, which refers to the degree to which users believe that using a particular technology will improve their work efficiency or quality of life. Basically, if users perceive that technology is useful, they will be more likely to adopt and use it (Alsyouf et al., 2023); and 2) perceived ease of use, which refers to the degree to which users believe that using a particular technology will be effortless if the technology is perceived as easy to use. Users will be more likely to accept and use that technology (Kelly et al., 2023). These two variables are important in determining individual attitudes toward technology use and behavioral intentions to use technology. In addition, there are variables that have been further studied and extended the original model to fit the context, including 1) the security and privacy variable, which aims to measure the degree to which users feel that using technology is safe and preserves their privacy and data (Alzaidi & Agag, 2022). Security and privacy are related but distinct constructs: security ensures that systems and data are protected from external threats, while privacy gives users control over how their personal information is collected, used, and shared. They overlap because secure systems are a prerequisite for privacy, yet strong security alone does not guarantee proper handling of personal data. Including both constructs provides a more comprehensive understanding of user trust, technology acceptance, and

potential risks of social media addiction (Dhagarra et al., 2020; Romansky & Noninska, 2020); 2) the self-efficacy variable, which measures the level of technology users' belief that they can use technology effectively (Saville & Foster, 2021); and 3) perceived behavioral control, which measures the level of an individual's ability to control their own behavior (Ajzen, 2002). This variable is explained using the theory of planned behavior (TPB), which has been used to study the context of technology use as well. Nonetheless, given that self-efficacy and perceived behavioral control often correlate strongly, prior research warns of potential collinearity effects. Anticipating this, the present study examines their unique contributions while testing for suppression patterns. However, the Technology Acceptance Model (TAM) highlights perceived usefulness and ease of use as key drivers of technology adoption. Extensions of TAM, including security and privacy, self-efficacy, and perceived behavioral control, provide a more comprehensive understanding of user behavior. These studies suggest that integrating cognitive, behavioral, and contextual factors is essential for predicting technology acceptance, particularly in sensitive or high-risk digital environments.

#### **Online Social Media Addiction**

Online social media addiction (OSMA) is a type of behavioral addiction that is broadly defined as engagement with social media platforms that disrupts users' normal lives by significantly intruding on important life domains such as interpersonal relationships, work or school performance, and physical health (Andreassen, 2015), which is consistent with the concept of the behavioral addiction model (Griffiths, 2005). In addition, Peng and Liao (2023) suggested six components of social media addiction: 1) Salience, which is the dominance of social media use in a person's thoughts, feelings, and behaviors to the point that it becomes the most important activity in life and overshadows other activities; 2) Tolerance, which is the increased time spent on social media to achieve mood-altering outcomes. Over time, users need to engage more with social media to feel satisfied; 3) Mood modification, which is the user's personal experience when using social media to improve their mood. 4) Withdrawal, which is an unpleasant physical and emotional state that occurs when social media use is reduced or stopped, including anxiety, irritability, and loss of appetite. 5) Conflict, which is a problem that arises from excessive social media use that can lead to conflicts with others. 6) Relapse, which is the tendency to return to problematic social media use after a period of abstinence or control. Users often find it difficult to reduce or quit using it. The case of social media addiction focuses on the excessive or uncontrollable use of social media platforms, which affects various aspects of a person's

daily life, especially education and learning. In addition, research tends to study social media addiction and problematic social media use (Pellegrino et al., 2022). Online social media engagement can range from ordinary use, to problematic use, to addiction. While ordinary use is functional and controlled, and problematic use shows some negative effects but remains manageable, addiction involves compulsive behavior, loss of control, and significant harm to academic performance and well-being. Online social media addiction is a severe form of maladaptive use, marked by compulsive behavior, loss of control, and significant negative impacts on daily life, with key features including salience, tolerance, mood modification, withdrawal, conflict, and relapse. This study focuses specifically on addiction to ensure precise measurement and to capture the most severe form of maladaptive engagement (Andreassen, 2015; Montag et al., 2021).

#### **Online Social Media Addiction and Academic Success**

Despite the negative aspects of online social media addiction, the use of social media also has a positive side. According to the research of Krishna et al. (2022), there are many positive aspects of online social media addiction, such as enhanced communication and connectivity, education benefits, professional networking, awareness and activism, marketing and business opportunities, health and well-being support, creativity and self-expression, and entertainment and recreation and etc. Krishna et al. (2022) stated that online social media addiction has good results, such as access to information and learning resources, professional networking and career opportunities, and promotion of creativity and self-expression although online social media addiction often has a negative connotation. Conversely, this study showed that responsible use of social media has many positive benefits, especially in terms of education for students who need extensive learning and access to a variety of information. Responsible online social media use can support learning and creativity, and combining TAM factors with key OSMA indicators offers a framework to examine their impact on academic success. Therefore, this research has applied the concept of technology acceptance. The variables are security and privacy, self-efficacy, and perceived behavioral control to study together with the TAM (perceived usefulness and perceived ease of use) model and social media addiction by using 3 preliminary indicators of social media addiction of Peng and Liao (2023): salience, tolerance, and mood modification to measure the impact on academic success. However, Social media can serve as a valuable learning tool when used in moderation and with clear academic purpose.

## Research Model and Hypotheses

This research is a cross-sectional research. It is a study to find the effects of security and privacy, self-efficacy, perceived behavioral control, perceived usefulness, and perceived ease of use on social media addiction and academic success of international university students. The study analyzed the paths according to the literature reviewed and used the past findings to set the objectives for the study. The research model according to the theory is shown in Figure 1. The research model in this study consists of 9 hypotheses and the effects between the variables according to the hypotheses appear in the model.

The relationships among security and privacy, perceived usefulness, and perceived ease of use play a critical role in the acceptance and use of digital platforms. When users feel that a platform is secure, protects their personal information, and is easy to navigate, they are more likely to perceive it as useful and trustworthy—leading to increased usage for information-seeking, learning, and other activities (Denaputri & Usman, 2019; Handoyo, 2024). Previous studies have emphasized that security and privacy positively influence perceived usefulness; when users trust that their data is safe, they are more confident and view the platform as more beneficial (Kurnia & Yolanda, 2024). Hence, the following hypotheses are proposed:

H1a: Security and privacy have a positive effect on perceived usefulness.

H1b: Security and privacy have a positive effect on perceived ease of use.

According to Huang (2020), self-efficacy significantly enhances both perceived usefulness and ease of use in learning technologies. Individuals with high self-efficacy believe they can use technology effectively and perceive it as both useful and easy to operate. Strengthening self-efficacy is vital for promoting technology acceptance (Lew et al., 2019; Yang, 2024). Thus, the following hypotheses are proposed:

H2a: Self-efficacy has a positive effect on perceived usefulness.

H2b: Self-efficacy has a positive effect on perceived ease of use.

Research also highlights the role of perceived behavioral control in shaping positive perceptions toward online learning systems. Users with higher control perceive such platforms as more useful and user-friendly (Nayanajith & Damunupola, 2020; Nuamsamrarn & Achwarin, 2023; Rachmi et al., 2023). Thus, the hypotheses are:

H3a: Perceived behavioral control has a positive effect on perceived usefulness.

H3b: Perceived behavioral control has a positive effect on perceived ease of use.

Perceived ease of use is described as a user's belief that technology is easy and uncomplicated (Nuryakin et al., 2023). Research confirms its direct impact on perceived usefulness, as users who find systems easy to use are more likely to see them as valuable for work or learning (Nugroho et al., 2018). Therefore:

H4: Perceived ease of use has a positive effect on perceived usefulness.

Regarding perceived usefulness and its effect on online social media addiction and academic success, Sumida Garcia and Costa Silva (2017) concluded that students who view social media as useful for social connection or learning are more likely to overuse it. Akmal (2017) also found that recognizing the educational benefits of platforms increases motivation and academic achievement. Thus, the following hypotheses are proposed:

H5a: Perceived usefulness has a positive effect on online social media addiction.

H5b: Perceived usefulness has a positive effect on academic success.

Perceived ease of use also impacts social media addiction. Pitafti et al. (2020) found that when users find social media convenient, they are more likely to become dependent on it. Furthermore, Nugroho et al. (2018) observed that ease of use in e-learning positively affects students' academic performance. Hence, the following hypotheses are developed:

H6a: Perceived ease of use has a positive effect on online social media addiction.

H6b: Perceived ease of use has a positive effect on academic success.

Although many studies emphasize the negative impacts of social media addiction, this research focuses on its positive effects on learning. Sefriani et al. (2023) found that social media addiction correlates positively with academic achievement in e-learning. Similarly, Galindo-Domínguez et al. (2024) showed that responsible social media use helps students manage learning better. Therefore, the following hypothesis is developed:

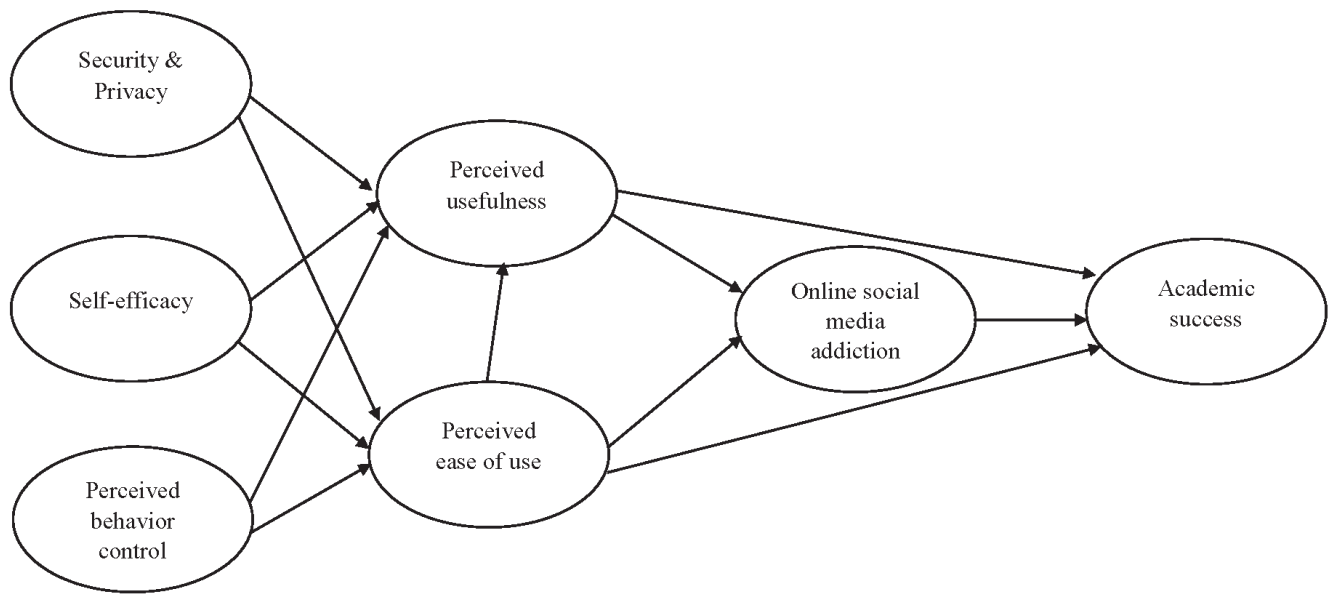
H7: Online social media addiction has a positive effect on academic success.

This study also investigates online social media addiction as a mediator between perceived usefulness/ease of use and academic success. When effectively used, social media can become a powerful learning tool (Sefriani et al., 2023). Therefore, the final hypotheses are:

H8: Online social media addiction mediates the positive effect between perceived usefulness and academic success.

H9: Online social media addiction mediates the positive effect between perceived ease of use and academic success.

**Figure 1**  
*Research Model*



These hypotheses are grounded in the Technology Acceptance Model (Davis, 1989), which posits that perceived ease of use and usefulness shape user engagement. Extending this framework, studies on social media overuse suggest that perceived usefulness may paradoxically foster excessive reliance (Paiman & Fauzi, 2024). Conversely, higher ease of use has been associated with more efficient, less compulsive engagement (Mou et al., 2024). Drawing from research on digital addiction in educational contexts, we anticipate a negative association between social media addiction and academic success (Pellegrino et al., 2022). Overall, prior studies indicate that while TAM constructs such as usefulness and ease of use shape technology engagement, their influence may also extend to maladaptive patterns like online social media addiction, which in turn is consistently linked to diminished academic success.

**Research Methodology**

This study adopts a quantitative research approach, focusing on seven variables: security and privacy, self-efficacy, perceived behavioral control, perceived usefulness, perceived ease of use, online social media addiction, and academic success. The target population comprises international students enrolled at Asia-Pacific International University during the 2023 academic year, totaling 1,027 students (Registrar Office, 2023). As the study involves structural equation modeling (SEM), an appropriate sample size is essential. According to Hair Jr et al. (2014), the sample size should be at least 200 or ten times the number of measurement items. With a questionnaire consisting of 46 items, the minimum required sample size is 460 (46 x 10 = 460). To ensure

representative coverage, the study employed purposive sampling with stratified sampling based on faculty affiliation. Data collection was conducted using an online questionnaire via Google Forms, distributed through official student communication channels within each faculty. The data collection period spanned from October 2023 to February 2024. A total of 556 responses were obtained, exceeding the minimum requirement, thus ensuring that the sample size is sufficient for the subsequent analysis. This robust sample supports the reliability of findings and allows for accurate modeling of relationships among the studied variables.

**Instrument Development**

The instruments developed to measure the variables used in the study came from past research. The variables consist of security and privacy, self-efficacy, perceived behavioral control, perceived usefulness, and perceived ease of use. The question instruments were developed and improved from Wu et al. (2021), with 5 questions for each variable, totaling 25 questions. As for the online social media addiction variable, there are 15 questions, which were developed and improved from the past research by Andreassen et al. (2012), Sahin (2018), and Tutgun-Ünal and Deniz (2015), and as for the academic success variable, there are 6 questions which were taken from the research of Gupta and Bashir (2018) showed that academic use of social networking, such as accessing learning materials and collaborating with peers, supports academic success, and the questions were adjusted to be appropriate for the participants. All questions use a 5-level Likert scale, ranging from 5 meaning strongly agree to 1 meaning strongly disagree. All questions were tested for validity using IOC value

by 3 experts. The questions were checked by trying them out with 50 respondents. Cronbach's alpha of all questions was 0.97.

## Research Results

A total of 556 complete and valid responses (226 males and 330 females) were collected about five months. The descriptive statistics of the sample indicate that the majority of the respondents were between 19 and 23 years old, numbering 435 students or 78.2 percent. The majority of them were in their second year, numbering 191 students or 34.4 percent. The type of social media they mostly used was Facebook, numbering 193 students or 34.7 percent, and the frequency of using social media was more than 10 times per day, numbering 263 students or 47.3 percent. In addition, nonresponse bias was checked by comparing the groups of respondents, divided into 2 groups: the group that responded earlier and the group that responded later. Therefore, the groups were defined as those who responded within 1 month and those who responded after 1 month. The analysis of differences using t-tests was performed for each variable with the groups that responded within 1 month and after 1 month. The results showed that the t-test values were not statistically significantly different between the two groups.

### 1. Exploratory Factor Analysis

The grouping of variables in this research used exploratory factor analysis with Varimax Rotation. There were 5 technology acceptance variables in total, consisting of 25 questions. They are: 1) Security and privacy; which has five questions with display factor loading between 0.74-0.84, 2) Self-efficacy; which has five questions with perform factor loading between 0.50-0.82, 3) Perceived behavior control; which has five questions with demonstrate factor loading between 0.62-0.78, 4) Perceived usefulness; which has five questions with showing factor loading between 0.61-0.81, and 5) Perceived ease of use; which has five questions with exhibiting loading weight between 0.50-0.80. In addition, online social media addiction dimensions with an Eigenvalue greater than 1.0. Three dimensions with fifteen items of the online social media addiction constructs consist of 1) Salience; which has five items exhibiting loading weight between 0.65-0.78, 2) Tolerance; which has five items performing factor loading between 0.54-0.77, and 3) Mood modification; which has five items showing factor loading between 0.60-0.86. Three dimensions of the online social media addiction variables (Salience, Tolerance, and Mood Modification) explain 67.47% of the total variance and all dimensions of the technology acceptance explain 64.00% of the total variance. Moreover, all 3 sub-variables of online social media addiction show 58.12% of the total variance. Lastly, six items for the academic success variable exhibit

60.52% of the total variance.

### 2. Normality Assessment and Estimation Approach

The assessment of univariate normality for all observed variables indicated that skewness values ranged from -0.759 to 1.374 and kurtosis values ranged from -1.146 to 0.167, suggesting that the data were reasonably close to normality at the univariate level (Byrne, 2013; Kline, 2023). However, the assessment of multivariate normality revealed a substantial deviation from the assumption of multivariate normal distribution. The multivariate kurtosis coefficient was 291.518 with a critical ratio of 69.465, far exceeding the recommended threshold of 5, while Mahalanobis distances ( $d^2$ ) were significant with  $P1 = 0.000 - 0.000$  and  $P2 = 0.000 - 0.042$ , indicating the presence of multivariate outliers and severe non-normality. These results suggest that standard errors and significance tests could be biased if non-normality is not properly addressed. To account for this issue, a bias-corrected bootstrap procedure with 5,000 resamples was applied to obtain robust standard errors and confidence intervals for all estimated parameters. All bootstrap samples were valid, indicating that the model estimation was stable and free from convergence or Multicollinearity issues. Consequently, statistical inferences were based on bias-corrected confidence intervals, which are considered robust to deviations from multivariate normality (Byrne, 2013; Kline, 2023). Although the measurement items were rated on a five-point Likert scale (ordinal data), prior methodological literature has shown that when the number of response categories is five or more and the sample size is sufficiently large, treating ordinal variables as continuous and applying maximum-likelihood estimation with bootstrap correction produces unbiased and reliable results (Byrne, 2013; Rhemtulla et al., 2012). Therefore, the adopted bootstrap-based estimation was deemed appropriate and statistically sound for this study.

### 3. Confirmatory Factor Analysis

Next, a confirmatory factor analysis (CFA) was conducted as shown in Table 1, the standardized path loadings of all of the items were significant (t-value > 1.96) and greater than 0.50. The composite reliability (CR) and Cronbach's alpha for all constructs exceeded 0.7. The average variance extracted (AVE) for perceived usefulness, security and privacy, perceived behavior control, mood modification, and academic success constructs were greater than 0.5. However, the ease of use, self-efficacy, salience, and tolerance variables display an AVE value of less than 0.50. However, according to Fornell and Larcker (1981), they stated that the AVE values lower than 0.50 can still be considered acceptable if the CR value exceeds 0.60. Therefore, each test result met its threshold criterion, and the convergent validity for the constructs was supported.

**Table 1**  
Standard Loading, AVE, CR, and Cronbach’s Alpha of Each Construct

Construct	Std. loading of each item	AVE	CR	α
Security and Privacy (SP)	0.68, 0.87, 0.86, 0.77, 0.72	0.61	0.89	0.89
Self-efficacy (SE)	0.57, 0.64, 0.84, 0.76, 0.58	0.47	0.81	0.81
Perceived Behavior Control (PBC)	0.76, 0.83, 0.81, 0.71, 0.67	0.57	0.87	0.87
Perceived Usefulness (PU)	0.64, 0.74, 0.88, 0.63, 0.72	0.53	0.85	0.85
Perceived ease of use (PEOU)	0.70, 0.68, 0.80, 0.74, 0.54	0.48	0.82	0.84
Salience (SAL)	0.68, 0.67, 0.76, 0.62, 0.68	0.47	0.81	0.82
Tolerance (TOL)	0.56, 0.68, 0.49, 0.72, 0.56	0.39	0.76	0.73
Mood Modification (MOM)	0.72, 0.81, 0.82, 0.81, 0.59	0.57	0.87	0.87
Academic Success (ACS)	0.64, 0.66, 0.77, 0.82, 0.78, 0.72	0.54	0.88	0.87

**4. Correlation Analysis and Discriminant Validity**

After that, the discriminant validity of the measurement model was assessed by comparing the square root of the AVE of each variable, which was considered from the correlation values between the variables and other variables (see Table 2). If the square root of the AVE value is greater than the correlation

value between the variables and other variables, the discriminant validity is considered to meet the conditions. The test results showed that the square root of the AVE value of each variable was between 0.63 and 0.78, which was greater than the correlation value between the variables, which was between 0.14 and 0.68.

**Table 2**  
Descriptive Statistics and Correlations Between Latent Variables

	M	SD	SP	SE	PBC	PU	PEOU	SAL	TOL	MOM	ACS
SP	4.07	0.70	<b>0.73</b>								
SE	4.11	0.64	0.57**	<b>0.70</b>							
PBC	2.97	0.94	0.39**	0.21**	<b>0.78</b>						
PU	3.67	0.68	0.36**	0.47**	0.40**	<b>0.69</b>					
PEOU	3.94	0.69	0.68**	0.54**	0.37**	0.48**	<b>0.76</b>				
SAL	3.44	0.79	0.50**	0.26**	0.52**	0.37**	0.51**	<b>0.68</b>			
TOL	3.60	0.67	0.25**	0.29**	0.19**	0.33**	0.31**	0.42**	<b>0.63</b>		
MOM	3.36	0.95	0.22**	0.14**	0.30**	0.29**	0.26**	0.47**	0.50**	<b>0.75</b>	
ACS	3.77	0.75	0.55**	0.47**	0.33**	0.43**	0.61**	0.61**	0.35**	0.33**	<b>0.74</b>

**5. Fit Indices and SEM Analysis**

The results of the fit index revealed that the observed variables were consistent between the theoretical data

and the empirical data. As detailed in Table 3, it was found that various values of the index of Item Objective Congruence, all values met the conditions.

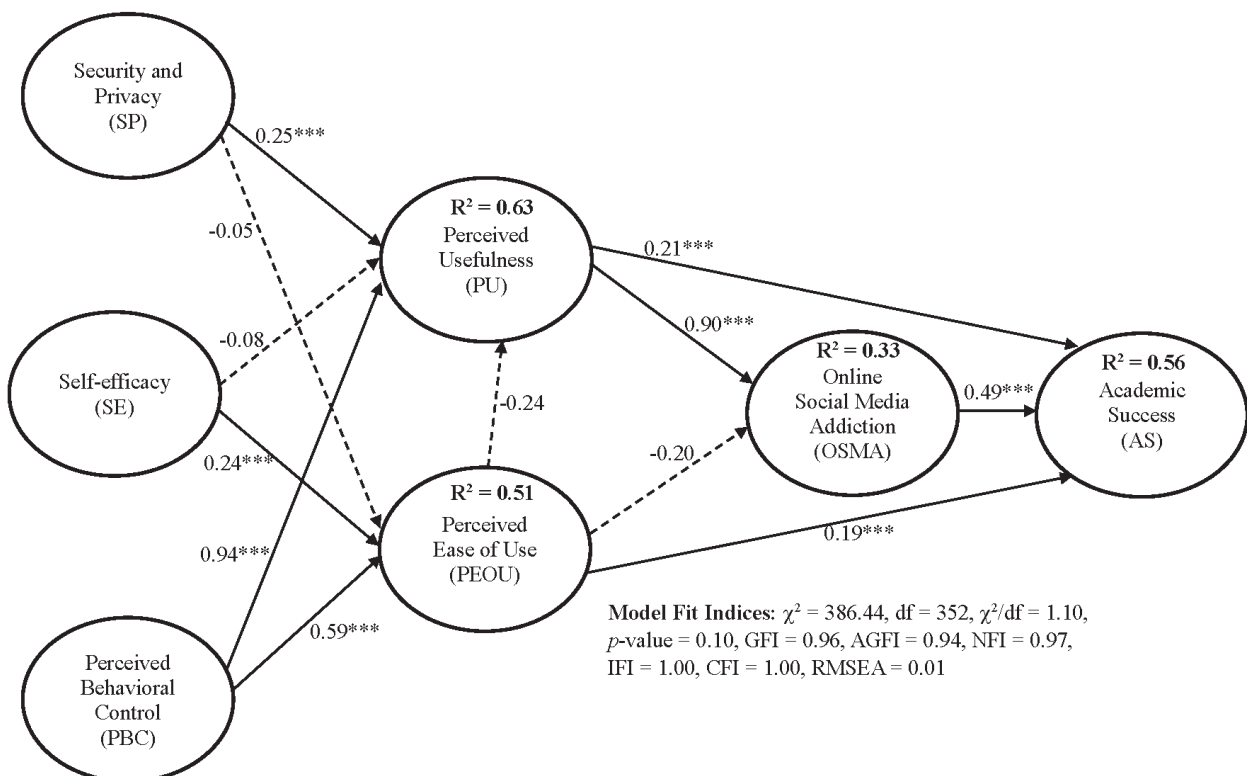
**Table 3**  
Results of Latent Variable Component Indicators

Measure	$\chi^2/df$	$p$	GFI	AGFI	RMR	RMSEA
Threshold	<3.0	>0.05	>0.90	>0.90	<0.05	<0.05
SP	0.52	0.59	1.00	0.99	0.00	0.00
SE	1.59	0.20	1.00	0.98	0.01	0.03
PBC	0.50	0.48	1.00	1.00	0.00	0.00
PU	0.01	0.91	1.00	1.00	0.00	0.00
PEOU	0.88	0.35	1.00	0.99	0.00	0.00
OSMA	1.00	0.37	1.00	0.99	0.01	0.00
ACS	1.11	0.29	1.00	0.99	0.01	0.01

The consistency test of the variables in the model includes security and privacy, self-efficacy, perceived behavioral control, perceived usefulness, perceived ease of use, online social media addiction, and academic success of international university students found that empirical data showed the following harmonization index values: the value of chi-square ( $\chi^2$ ) equals to 386.44, the value of Degrees of Freedom ( $df$ ) equals to 352, the value of  $\chi^2/df$  equals to 1.10, the value of  $p$  equals to 0.10, the value of GFI equals to 0.96, the value of AGFI equals

to 0.94, the value of NFI equals to 0.97, the value of IFI equals to 1.00, the value of CFI equals to 1.00, and the value of RMSEA equals to 0.01. Therefore, all values are appropriate according to the conditions of the analysis of the index of the consistency of the variables with the research model. Figure 2 shows the results from the analysis of the effect values between the variables studied using the Path Analysis of the Structural Equation Modeling (SEM) to test the consistency between the research model and the empirical data.

**Figure 2**  
Structural Model Testing Results



The analysis of the conceptual framework and empirical data of the study on the effects of technology acceptance and social media addiction on the academic success of international university students: the results of testing the specified hypotheses are as follows: Hypothesis 1 consists of; testing of Hypothesis 1a (H1a), found that security and privacy had a positive impact on perceived usefulness ( $Y = 0.25, p < 0.001$ ). Therefore, Hypothesis 1a (H1a) was accepted, and testing Hypothesis 1b found that security and privacy did not affect perceived ease of use ( $Y = -0.05, p > 0.05$ ). Therefore, Hypothesis 1b was rejected. Subsequently, testing hypothesis 2a (H2a) found that self-efficacy did not have a positive effect on perceived usefulness ( $Y = -0.08, p > 0.05$ ). Therefore, Hypothesis 2a was rejected. Testing hypothesis 2b found that perceived self-efficacy had a positive effect on perceived ease of use ( $Y = 0.24, p < 0.001$ ). Therefore, Hypothesis 2b (H2b) was accepted. Then, for hypothesis 3a (H3a), it was found that perceived behavioral control had a positive impact on perceived usefulness ( $Y = 0.94, p < 0.001$ ). Therefore, hypothesis 3a (H3a) was accepted. Hypothesis 3b, perceived behavioral control had a positive impact on perceived ease of use ( $Y = 0.59, p < 0.001$ ). Therefore, Hypothesis 3b (H3b) was accepted. Hypothesis 4 (H4), it was found that perceived ease of use has no positive impact on perceived usefulness ( $Y = -0.24, p > 0.05$ ). Therefore, hypothesis 4 was rejected.

Hypothesis 5a (H5a), it was found that perceived usefulness had a positive impact on online social media addiction ( $Y = 0.90, p < 0.001$ ). Therefore, Hypothesis 5a (H5a) was accepted. Hypothesis 5b, perceived usefulness had a positive impact on academic success ( $Y = 0.21, p < 0.001$ ). Therefore, Hypothesis 5b (H5b) was accepted. Hypothesis 6a (H6a), it was found that perceived ease of use had a negative impact on online social media addiction ( $Y = -0.20, p > 0.05$ ). Therefore, Hypothesis 6a (H6a) was rejected. Hypothesis 6b, perceived ease of use had a positive impact on academic success. Therefore, Hypothesis 6b (H6b) was accepted ( $Y = 0.20, p < 0.001$ ). Hypothesis 7 (H7), it was found that online social media addiction had a positive impact on academic success. Therefore, Hypothesis 7 (H7) was accepted ( $Y = 0.49, p < 0.001$ ).

Testing hypothesis 8 (H8) found that online social media addiction is a mediator variable and had a positive direct impact on perceived usefulness (PU) and academic success (AS) ( $Y = 0.43, p < 0.001$ ). Therefore, hypothesis 8 (H8) was accepted, and testing hypothesis 9 (H9) found that online social media addiction is a mediator variable that had a positive impact between perceived ease of use and academic success ( $Y = 0.19, p < 0.001$ ). Therefore, hypothesis 9 was accepted. See the details in Figure 2 and Table 3, which show the analysis of the relationship between the variables.

**Table 4**  
*Hypothesis, Path Analysis, Standardized Path Coefficient, and Results*

Hypothesis	Path analysis	Path Coefficient	Result
H1a	SP → PU	0.25***	Accepted
H1b	SP → PEOU	-0.05	Rejected
H2a	SE → PU	-0.08	Rejected
H2b	SE → PEOU	0.24***	Accepted
H3a	PBC → PU	0.94***	Accepted
H3b	PBC → PEOU	0.59***	Accepted
H4	PEOU → PU	-0.24	Rejected
H5a	PU → OSMA	0.90***	Accepted
H5b	PU → AS	0.21***	Accepted
H6a	PEOU → OSMA	-0.21	Rejected
H6b	PEOU → AS	0.20***	Accepted
H7	OSMA → ACS	0.49***	Accepted
H8	PU → OSMA → AS	0.43***	Accepted
H9	PEOU → OSMA → AS	0.19***	Accepted

## Discussion

The empirical findings of this study reveal that the variables security and privacy have a positive direct effect on perceived usefulness, but no significant effect on perceived ease of use. This aligns with the findings of Handoyo (2024), who emphasized that security and privacy significantly influence users' perceptions of a platform's usefulness and encourage usage. When users trust that a platform can safeguard their personal data, they tend to view it as more useful and trustworthy, increasing their likelihood of engaging with it. However, some users may perceive a platform as secure without finding it easy to use, or they may find it user-friendly yet feel their data is not adequately protected. Furthermore, self-efficacy was found to have a positive direct impact on perceived ease of use but no significant effect on perceived usefulness. This is consistent with Yang (2024), who found that users confident in their abilities perceive online learning platforms as less complex and easier to use, contributing to higher success rates. Similarly, Huang et al. (2020) noted that self-efficacy significantly influences perceived ease of use and enhances students' willingness to adopt technology. Additionally, perceived behavioral control positively affects both perceived usefulness and perceived ease of use. This finding supports Nayanajith and Damunupola (2020), who showed that users with high perceived control feel more capable of managing e-learning platforms and see them as more beneficial. Rachmi et al. (2023) also highlighted that users confident in handling applications can navigate challenges more effectively, enhancing both ease of use and perceived value. Lastly, perceived ease of use did not significantly influence perceived usefulness, which aligns with Davis (1989) and the recent study by Pratista and Marsasi (2023), who found that users with high digital literacy can navigate complex technologies without ease of use affecting their perception of usefulness.

The variable of perceived usefulness has a direct positive effect on both online social media addiction and academic success. This supports the findings of Sumida Garcia and Costa Silva (2017), who reported that when students perceive social media as beneficial for learning or social interaction, they tend to use it more frequently, increasing the risk of addiction. Differences in how students experience social media may contribute to communication gaps and behavioral shifts, leading to constant reliance on these platforms. The variable perceived ease of use has a direct positive impact on academic success (AS) but a negative direct effect on online social media addiction. This aligns with Paiman and Fauzi (2024), who found that while ease of use can increase the frequency of social media use—potentially leading to addiction—it can also result in reduced usage in inappropriate contexts, such as during study or work.

Prolonged screen time caused by user-friendly platforms can have adverse effects on mental and physical health, including insomnia, stress, and anxiety. Based on the technology acceptance model (TAM), it is possible for perceived ease of use to have a negative relationship with online social media addiction (OSMA), while OSMA has a positive relationship with academic success. This can occur if higher ease of use reduces compulsive or uncontrolled social media use, and if moderate or purposeful use of social media positively supports academic outcomes. Recent studies supporting related dynamics include Al-Rahmi et al. (2021), Chen et al. (2022), Erduran Tekin (2024), Landa-Blanco et al. (2024) and Mosharrafa et al. (2024). In addition, the study also found that online social media addiction acts as a mediator between perceived usefulness and perceived ease of use in relation to academic success. This suggests that when students perceive social media as useful and easy to use, they tend to engage with it more, gaining access to academic resources like lesson materials, instructional videos, and scholarly articles, thus enhancing learning outcomes (Ning & Inan, 2023). Moreover, online social media addiction has a direct positive influence on academic success, showing that increased usage can support academic engagement through knowledge sharing, peer collaboration, and building academic networks. While some literature warns of its negative impact, under appropriate conditions, social media use can enhance learning and skill development. Although OSMA is generally linked to negative academic outcomes, in certain contexts—such as among international students or when used creatively for academic purposes—OSMA can enhance academic performance by promoting engagement, learning, and access to educational resources.

This study differs from previous research by focusing on the potential positive impacts of social media addiction among higher education students. The findings aim to help students strike a balance in their social media use to enhance educational benefits. Krishna et al. (2022) highlighted that, when used effectively, social media addiction can offer several advantages: 1) Improved communication and connectivity, fostering a sense of community and maintaining long-distance relationships; 2) Access to diverse learning resources and up-to-date information, supporting skill development and participation in academic discussions; 3) Opportunities for professional networking and career advancement through platforms that connect users with industry professionals and allow self-promotion; 4) Support and community building via shared experiences and advice in interest-based groups; 5) Creative expression through multimedia content, enhancing self-esteem and personal fulfillment; 6) Business growth and marketing by enabling

customer engagement and brand promotion at low cost; and 7) Social awareness and activism by supporting cause-related campaigns and mobilization. Although concerns about addiction, privacy, and mental health remain, these benefits demonstrate that social media can be a valuable tool. Therefore, users should aim to manage their usage wisely to maximize positive outcomes and reduce potential harm.

### 1. Theoretical Implication

The empirical data from the study demonstrates the importance of various variables that affect the use and usefulness of social media. Each variable shows clear analysis results showing different effects of each variable on perceived usefulness, perceived ease of use, and behaviors. For example, the study results confirm that self-efficacy is an important determinant of perceived ease of use of social media, while perceived behavioral control affects perceived usefulness and ease of use. In addition, the study results show the impact of social media use in many dimensions, such as online social media addiction, which affects educational achievement and other user behaviors. This study confirms the Technology Acceptance Model that affects academic achievement. Moreover, the strong paths (PU → OSMA → AS) can be explained by intensified instrumental use: when students perceive social media as useful for academic purposes, they use it more, which may increase addictive behaviors. The effect on academic success depends on use type: task-focused use can benefit learning, while hedonic use may harm performance. The positive impact of social media addiction on academic success can be explained by its instrumental use for learning, the social support provided by online networks, and easy access to information. When used intentionally and strategically, social media can enhance engagement, motivation, and academic performance. Finally, this finding provides useful information for understanding the factors that affect digital platform and social media usage behaviors and can be applied to promote effective use in education and organizations. However, the study found that perceived ease of use did not significantly affect perceived usefulness, challenging the original TAM. Recent research (Chen et al., 2025; Lee et al., 2025) suggests that external factors, user characteristics, and technology-specific features can influence this relationship, indicating that ease of use does not always drive perceived usefulness.

### 2. Practical Implication

The results of this study can be applied by using relevant variables to make the use of social media effective and lead to learning for academic success. The analysis of the relationship between the variables shows the impact on social media users. Therefore, in order to provide a foundation for students who want to achieve academic success, they should focus on safety, ease of use, and

perceived benefits of use, which are important factors that help increase students' learning efficiency. Students will be successful in their studies or academics if they seek a balance in using social media, have the ability to control themselves in using social media, use social media responsibly, and plan and adjust appropriately to use each type of learning platform to create creativity, maximize benefits for self-development, and promote their own learning, which will lead to academic success. Moreover, Educational institutions can enhance academic success by promoting purposeful use of social media, providing training on effective academic use, and monitoring usage to ensure it supports learning goals.

### Recommendation and Future Research

From this study, those who are interested can conduct further research to fill the gaps caused by the limitations of this research study. Because this research is a quantitative research, data were collected by questionnaires using a cross-sectional online questionnaire. This study is limited to international students from a single Thai university, which restricts generalizability to other settings. Future research should replicate the study across multiple institutions and countries, include diverse student populations, and consider longitudinal designs and objective academic performance measures to enhance external validity. Moreover, this study also combined the opinions of Thai and international students. Therefore, future studies may consider separating the study between Thai and international students, including considering the students' grades that affect academic success for this research. In addition, future studies may use mixed methods research and expand the model to cover other variables, such as learning behavior, self-esteem, motivation, satisfaction, student interactions, and knowledge sharing, etc. Finally, this study is limited by contextual factors, user experience, and technology characteristics that may have influenced the non-significant PEOU → PU relationship and PEOU → OSMA. Future research should explore these moderating factors using diverse methods, including surveys, interviews, or experimental designs, to better understand the dynamics of technology acceptance.

### Conclusions

This study investigated the impact of technology acceptance and online social media addiction on the academic success of international university students. Utilizing the Technology Acceptance Model (TAM) alongside factors such as security and privacy, self-efficacy, and perceived behavioral control, the findings confirm that perceived usefulness and perceived ease of use are essential mediators influencing academic performance. Notably, perceived usefulness and online social media

addiction positively affect students' academic achievement, demonstrating that under appropriate conditions, social media usage can enhance learning engagement and resource access. The results also revealed that online social media addiction, often viewed negatively, can have beneficial effects on academic success when managed responsibly. The mediating role of social media addiction between perceived usefulness and academic outcomes highlights the nuanced nature of digital engagement in modern education. Additionally, perceived behavioral control emerged as a strong predictor of both perceived usefulness and ease of use, while self-efficacy was more influential in shaping perceived ease of use. In summary, the study underscores the need for a balanced and intentional approach to social media use in academic settings. By enhancing students' self-efficacy, safeguarding online privacy, and promoting platforms that are both useful and easy to use, educational institutions can foster more effective digital learning environments that support students in achieving academic success.

### Author Contributions

**Wanlee Putsom:** Writing – original draft, Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation. **Duangjai Wongkoe:** Writing – original draft, Funding acquisition, Investigation, Project administration, Resource, Visualization. **Surapee Sorajjakool:** Writing – review & editing, Conceptualization, Formal analysis, Investigation, Methodology, Supervision.

### Declaration of Competing Interest

The authors declare no conflicts of interest concerning the conduct of this research, and affirm that they have no relevant financial or personal interests to disclose.

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