

Exploring the role of social and emotional factors as antecedents of motivation in mobile learning contexts

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ABSTRACT

This study examined students' motivations for using mobile learning applications in educational settings. Primary data were obtained through a survey involving 300 Jordanian university students with mobile learning use experience in their studies. The results showed a significant effect of self-efficacy on perceived usefulness, and a significant effect of perceived convenience on perceived usefulness. Results also showed a significant effect of social and emotional learning on behavioral intention to use mobile learning.

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1. Introduction

Artificial intelligence (AI) is a technology that enables users to efficiently analyze complex data, transfer knowledge, and communicate with others. The capabilities of this technology have opened a myriad of new horizons. In today's digital age, AI has become even more vital. In the education domain, AI facilitates self-learning and flexible learning, which are increasingly common among university students today (Rudolph et al., 2023), making AI usage increasingly integral in educational settings.

Zins and Elias (2007) defined social and emotional learning (SEL) as the process by which humans acquire the necessary social emotional abilities for living and learning. Empathy, problem-solving, and self-regulation are among the essential emotional abilities required by humans for survival and development. Social-emotional skill building begins at birth through child-parent interactions as well as through interactions with people at home. It is a continuing and cumulative process (Osher et al., 2020). Relevantly, socialization involves a process. During socialization, children familiarize themselves with the attitudes, behaviors and skills of their parents and of others. These attitudes, behaviors and skills, which are often displayed through actions, guide children's participation in the community.

Schools are considered as a place in which a person develops the social emotional skills that the person needs to succeed in education, work and life (Eccles & Roeser, 2011). Hence, schools are a vital context for SEL. Relevantly, child outcomes (e.g., psychosocial health, academic achievements and resilience) and SEL appear to be linked. Additionally, adolescent time is regarded as a delicate time for one to develop his/her advanced social-emotional skills. According to Crone (2017), these skills are vital in the completion of key developmental tasks including independence and differentiated self-concept. Guidance and support from adults are also crucial during this time. Hence, to assure positive youth development, collaboration between parents and school is important (Garbacz et al., 2015; Alnaser et al., 2023; Al Mansoori et al., 2023), to guide the children in improving their social-emotional skills (Hill et al., 2018).

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Several common acceptance theories have been used in mobile learning apps studies, especially studies that explore the interrelationships of these theories in acceptance model development. A single model based on various theories will increase the understanding of technology acceptance, resulting in new acumens (Nikou, 2021). However, related literature showed a knowledge gap in user intent towards mobile learning use (Al-Husamiyah & Al-Bashayreh, 2022; Alsokkar et al., 2024; Al-Gasawneh et al., 2025).

The main aim of the present study was to explore the factors that impact user acceptance towards Mobile Learning. A model was proposed. The model, was also validated, included factors from well-known theories namely Social Cognitive Theory (SCT), Innovation Diffusion Theory (IDT), and Technology Acceptance Model (TAM). The factors were: Self-Efficacy (SE) from SCT, Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) from TAM, and Perceived Convenience (PCV) from Yoon and Kim (2007). The effect of PU, PEOU, SE, PCV and SEL on behavior intention towards Mobile Learning usage was examined in this study.

2. Literature Review and Hypotheses Development

2.1 Perceived Usefulness and Perceived Ease of Use

The impact of perceived usefulness (PU) on behavioral intention (BI) has been reported in some studies that used TAM (Al-Hamad et al., 2021; Al-Emran et al. (2020) somehow saw no discernible connection between both constructs. In the use of social media platforms (e.g., Instagram) for instance; the use is likely to increase if users could effortlessly add a contact to their preferred messaging apps (e.g., WhatsApp and Instagram). At present, Mobile Learning apps are available on smartphones, computers, and tablets, but users can still easily use the app through the browser on any web-responsive device. Notably, the natural interaction feature and high usability of Mobile Learning could increase user intention to use.

In their study, Wu and Wang (2005) found perceived usefulness as a major factor in encouraging the use of a technology. In another study, Jeong (2022) found that a technology is likely to be accepted if the user believes that it would benefit him/her. However, Kumar et al. (2020) reported no discernible link between PEOU and BI. It is thus worthy to examine the effect of perceived utility on the perceptions towards the use of Mobile Learning for learning purposes. With the aforementioned previous findings under consideration, the present study proposed the following hypotheses:

H₁: *Perceived usefulness of Mobile Learning has a positive direct effect on the intention towards the use of mobile learning apps among Jordanian students.*

H₂: *Perceived ease of use of Mobile Learning has a positive direct effect on perceived usefulness.*

H₃: *Perceived ease of use of Mobile Learning has a positive direct effect on the intention towards the use of mobile learning apps among Jordanian students.*

2.2 Perceived Convenience

The factor of Perceived convenience (PCV) in the model was based on Yoon and Kim (2007). Many studies, especially those examining the subject of technology acceptance (e.g., studies on Mobile Learning), have employed this factor, especially in predicting PU. Cheng (2015) and Chang et al. (2012) in examining technology acceptance in Taiwan, employed TAM alongside other factors. The authors were able to evaluate user acceptance of Mobile Learning effectively. The inclusion of PCV into TAM allows the model to reliably predict PU. Hence:

H₄: *Perceived convenience of Mobile Learning has a positive direct effect on perceived usefulness.*

2.3 Self-Efficacy

Self-efficacy (SE), which is a factor in social cognitive theory (SCT) by Bandura (1986), is often employed in predicting PU and PEOU, in technology acceptance studies especially. Park et al. (2012) for instance, employed SE and PU in examining Mobile Learning acceptance among university students in South Korea, but saw no discernible link between SE and PU. In Bangladesh, Fatima et al. (2017) employed TAM with the inclusion of SE, in examining student acceptance of Mobile Learning. Results showed that SE was a major predictor of PU and PEOU. In another study, Kumar et al. (2020) examined Malaysian university students' acceptance of Mobile Learning, using TAM with the addition of SE. Results showed SE being a significant predictor of PEOU, but the authors saw no significant linkage between SE and PU. Fatima et al. (2017) also used TAM with the inclusion of SE in examining the factors that affect Mobile Learning adoption in Malaysia. The hypothesis below was hence proposed:

H₅: *Self-efficacy of Mobile Learning has a positive direct effect on perceived usefulness.*

2.4 Social and Emotional Learning

Emotional engagement of users can facilitate user intention towards continuing their learning courses online (Kumar et al., 2022; AlSokkar et al., 2025). Additionally, the readiness of learners to establish an effective commitment and emotional connection toward Mobile Learning and other Mobile Learning parties (e.g., instructors and peers) through Mobile Learning platform will increase the likelihood of learners to continue learning using Mobile Learning (Shao & Chen, 2021). In other words, learner's emotional LE driven by Mobile Learning can affect the intent of learner towards continued Mobile Learning usage. In addition, consistent direct communication and social interaction with other Mobile Learning parties (e.g., instructors and peers) during learning will positively affect learner's intent to continue the Mobile Learning usage (Joo et al., 2011). The hypothesis below was thus proposed:

H₆: *Social and Emotional learning of Mobile Learning will have a positive impact on intention to use Mobile Learning.*

The following Fig. 1 provides the theoretical model of the study.

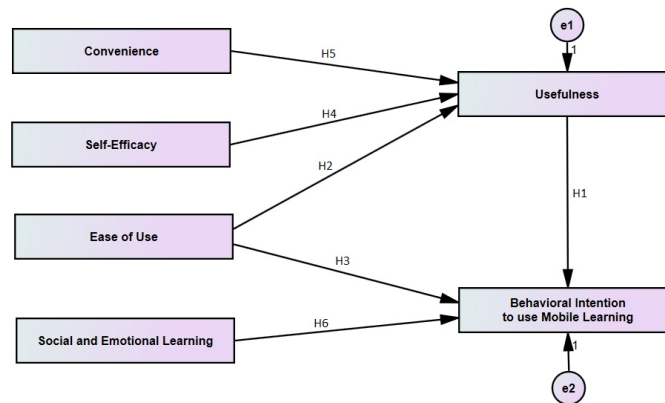


Fig. 1. Research model

3. Methodology

3.1 Measurement and Pre-test

Survey method was employed in this study to obtain the data. Questionnaire was the instrument used. The items of the questionnaire were measured using a 5-point Likert scale, where, 1 denotes "Strongly disagree," 3 denotes "Neutral" and 5 denotes "Strongly agree." The items were checked in terms of content validity based on Cronbach (1951). The items were revised and adapted from extant literature and validated scales. Hence, the items had strong content validity. The questionnaire was also translated into Arabic language to facilitate the respondents in answering the items. Back-translation method was the method used in translating the questionnaire items. A pre-test was carried out as well. A total of 30 undergraduate students with Mobile Learning use experience took part in the test. They provided feedback on the questionnaire to help improve the instrument.

3.2 Sampling Process

The research model and hypotheses were tested using the data obtained from the survey. The sampling frame encompassed Jordanian university students with Mobile Learning usage experience. Jordanian university implemented quality Mobile Learning which included video-based learning courses according to certain syllabus. As such, choosing Jordanian university as the study context was appropriate. During the execution of this study, Mobile Learning had been in use in the university for more than three years.

3.3 Data Collection and Ethical Considerations

Data was collected on the Mobile Learning platform of the university. Respondents were those registered on the Mobile Learning platform in May 2025. The study participants, who voluntarily joined this study, received the survey questionnaire through their email. They were also informed on the purpose of the study, and were given assurance in terms of anonymity and confidentiality. Not only that, the participants were assured that the data they provided were to be used stringently for the study purposes. A total of 300 out of 450 participants who responded had agreed to let their data be used in this study.

3.4 Study Participants

This study employed an appropriate number of participants (300 participants), and as mentioned, the participants had experience in Mobile Learning usage. The details of the participants can be viewed in the following Table 1.

Table 1
Demographic Table of Respondents.

Demographic	Categories	Freq.	%
Gender	Male	215	71.6
	Female	85	28.3
	Total	300	100
Age	Less than 25	55	18.3
	25 to 34	45	0.15
	35 to 44	120	0.40
	45 to 54	80	26.6
	Total	300	100
Experience	Less than 5 years	2	0.66
	Between 5 and 10 years	98	32.6
	Between 11 years and 20 years	170	56.6
	21 years or longer	30	10
	Total	300	100

4. Results

4.1 Model Fit Results

4.1.1 Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was performed to determine the fit of the obtained data to the inferred measurement. The fit of the model to the study variable was determined using composite reliability (CR), convergent validity and discriminant validity, through factor loadings as presented in Table 2.

Table 2
Factor Loading, Composite Reliability, and Average Variance Extracted Results

Latent Variable	Indicator	FL	AVE(> 0.50)	CR(> 0.70)	Cronbach's Alpha (> 0.70)
Perceived Convenience	PCV1	0.611	0.533	0.766	0.805
	PCV2	0.734			
	PCV3	0.651			
Self-Efficacy	SE1	0.678	0.67	0.789	0.766
	SE2	0.622			
	SE3	0.749			
Social and Emotional Learning	SEL1	0.691	0.651	0.774	0.871
	SEL2	0.766			
	SEL3	0.756			
Perceived Usefulness	PU1	0.755	0.518	0.835	0.822
	PU2	0.761			
	PU3	0.663			
	PU4	0.623			
	PU5	0.745			
	PU6	0.722			
Perceived Ease of Use	PEU1	0.541	0.603	0.821	0.844
	PEU2	0.720			
	PEU3	0.701			
	PEU4	0.744			
	PEU5	0.877			
	PEU6	0.803			
Behavioural Intention to Use	BIU1	0.733	0.715	0.681	0.727
	BIU2	0.899			
	BIU3	0.762			

4.2.2 Convergent Validity

The outcomes of composite reliability (CR) and average variance extracted (AVE) showed excellent internal consistency of the construct items and adequate fit of the model to the data. The composite reliability values of the items were greater than Hair et al.'s (2011) recommended value of 0.7 (0.766-0.835), while the average variance extracted (AVE) values of the items were greater than 0.5 (0.518-0.715). Hence, acceptable convergent validity can be affirmed for the items. Also, results showed that the latent construct elucidates at least 50% of the indicator variance, as suggested by Fornell and Larcker (1981). Convergent validity of the latent variables can thus be affirmed.

4.2.3 Discriminant Validity

Fornell and Larcker (1981) mentioned the need for constructs to be empirically distinct from one another. This is to assure the unique identity of each construct. As shown in Table 3, AVE analysis results showed that the AVE square root values are greater than any correlation coefficients between constructs.

Table 3
Discriminant Validity

	1	2	3	4	5	6	7	9
Perceived Convenience	.744							
Self-Efficacy	.523**	.711						
Social and Emotional Learning	.430**	.517**	.726**					
Perceived Usefulness	.401**	.511**	.776**	.752**				
Perceived Ease of Use	-.011	.044	.045	.051	.073			
Behavioral Intention to Use	-.013	-.115*	-.052	.053	.021	.032		
							.777	
								.833

** . Correlation is significant at the 0.01 level (1-tailed), * . Correlation is significant at the 0.05 level (1-tailed).

4.3 Hypotheses Analysis Findings

The proposed hypotheses were analyzed using structural equation modeling (SEM). This approach enabled the testing of all relevant paths while accounting for measurement errors. Moreover, feedback was directly incorporated into the model. Consequently, Fig. 2 presents the results obtained from the SEM analysis of the research hypotheses.

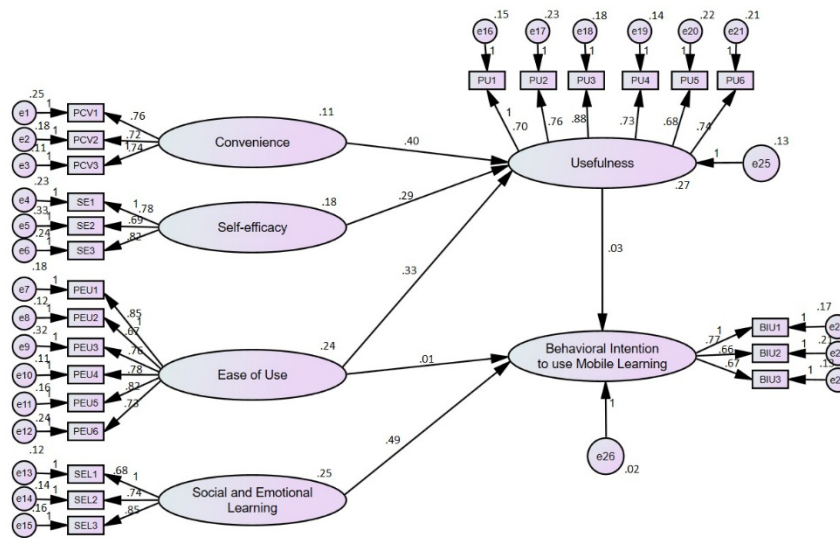


Fig. 2. Results of The SEM Model for the Hypotheses

5. Discussion

SEM was used in this study in testing the hypotheses as it was deemed fitting for the study context. Using SEM, both the direct and indirect effects could be simultaneously tested. Based on the results, Perceived Usefulness had no impact on Behavioral Intention to use, and thus, H1 was not supported. Positive and significant impact of Perceived Ease of Use on Perceived Usefulness was demonstrated by the results. Hence, H2 was supported. Perceived Ease of Use did not show impact on Behavioral Intention to Use. As such, H3 was not supported. Furthermore, results showed the impact of Perceived Convenience and Self-Efficacy on Perceived Usefulness, and thus, H4 and H5 were supported. H6 was supported as the results showed significant positive effect of Social and emotional learning on Behavioural Intention to Use. As can be understood, Social and emotional learning had a positive and direct impact on the intention towards Mobile Learning usage among students in Jordan. Table 5 accordingly displays the summarized hypothesis test results.

This study proposed a theoretical model comprising five factors that impact user acceptance of Mobile Learning. The factors, which were based on SCT, IDT, and TAM, and Yoon and Kim (2007), were: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Self-Efficacy (SE), Perceived Convenience (PCV) and social emotional learning (SEL). The model helped to justify the acceptance of Jordanian students towards Mobile Learning usage. As demonstrated by the results, PU (H1) and PEOU (H3) did not significantly or directly affect BI towards Mobile Learning usage. In other words, PU and PEOU were not predictors of BI in this study. This result may be due to the lack of learning resources, and the students had to use Mobile Learning as it was the only choice available for learning. Contrariwise, significant effect of PU on BI has been reported by Sophea et al. (2022), Al-Hamad et al. (2021) and Buabeng-Andoh (2021). Additionally, Sophea et al. (2022), Pratama (2021) and Al-Emran et al. (2020) found significant effect of PU on PEOU. Another point worth noting is that the respondents were from the mobile generation. Hence, they showed superior performance when they learned using mobile devices. Not only that, internet usage has become a routine for the respondents, and the respondents would use the Internet to get information. Notably, the results of this study contradicted previous findings. This may be attributed to the distinct preferences and culture of Jordanian students, as opposed to those in advanced and the emerging nations. More in-depth studies should be carried out to increase understanding of this matter.

6. Research Implications

This study proposed an inclusive model to examine the use of Mobile Learning among Jordanian students. The model was based on the combination of well-known models and theories namely TAM, SCT, and IDT. PU, PEOU, SE, PCV, and SEL were the factors included in the model. They were chosen for their potential impact on mobile learning adoption. With these factors, mobile learning usage among students could be examined from the social, technical and psychographic viewpoints. Past studies have reported positive relations between PU, PEOU and PCV and Mobile Learning adoption. However, these studies were carried under normal settings, as opposed to the present study. Hence, the outcomes were likely to be contradictory, because users may view these connections as less serious.

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