The Impact of Technology Identity on Student's Adoption of Social Media in Online Learning

Ibrahim Almarashdeh* and Malek Alzaqebah

***Abstract*—This study examined the impact of social media identity on online learning through social media. Smart-PLS 3.3 was run to test the relationship between social media identity, self-efficacy, and social influence on online learning through social media. The Moderation effect of social influence and self-efficacy on the relation between social media identity and behavioral intention to use social media for online learning was examined. Questionnaires were distributed online and 362 valid responses received. Results showed significant positive impact of social media identity, self-efficacy and social influence on behavioral intention to use social media in online learning courses. The moderating effect of self-efficacy and social influence was affirmed. High self-efficacy led to the negative impact of social media identity on the use of the use of social media in online learning. The high social influence led to the positive impact of social media identity on social media use in online learning. The study recommends developing guidelines for integrating social media effectively in education, creating user-friendly platforms, and enhancing students' self-efficacy through engaging projects. Additionally, promoting communication and considering emotional participation, self-efficacy, and social influence are essential. Further research could explore performance expectancy and academic achievement for deeper insights.**

***Index Terms*—Technology identity, online learning, social media identity, technology adoption, social influence**

I. Introduction

People are increasingly relying on social networks to maintain relationships with institutions [1]. Consequently, cultural and normative expectations shaping roles and relationships have a growing influence on people's interaction with information technology (IT) [2]. Mobile phones and networked technologies are shaping individual identities within social structures [3], as these technologies become widespread. They act as bridges between work and personal life, transcending location and culture [4]. Such technologies also complicate the determination of a person's identity across various groups, roles, and situations in their IT usage. This raises the question: "Who am I through my use of this technology?" The present study refers to IT identity as the meanings a person associates with themselves in relation to IT [3]. While students may show formal IT identity in class, it's crucial to comprehend their evolving professional identity and the diverse online and offline identities they simultaneously exhibit [5]. Further investigation is needed into the relationship between social network structures and opportunities for self-verification in social interactions [6].

Most studies on online learning focus on model effectiveness [7, 8], with limitations like biased samples, single-factor focus, or methodological gaps. Given online learning's relative novelty, research in this domain remains limited. Existing studies on social networking tackle various topics like knowledge transfer, privacy, interpersonal impressions, identity, and social norms [9–14], but the intersection of social networks and online learning remains underexplored. While Barnes [15] notes social networks' impact on education, the mechanisms driving these positive changes are unclear [16]. As social networking continues to expand, future online learning must incorporate it to foster student-resource connections. In evaluating education, Vate-U-Lan [17] emphasizes considering the psychological impact of learning systems on students' well-being.

Thus, this study delves into the application of social networks based on social media identity, social influence, and self-efficacy in online learning. It seeks to understand how dimensions of social media identity—dependence, emotional energy, and relatedness—affect the intention to use social media for online learning. Given the evolving landscape of online education, this study carries significance for both educators and students. Additionally, the study examines how social influence and self-efficacy moderate the relationship between social media identity and the intention to use social media for online learning.

A. Theoretical Foundation

This section discusses previous research findings related to the study's context, including technology acceptance, online learning, technology identity, self-efficacy, social media, and social influence. It then discusses the relevance of these concepts in the context of online learning.

B. Online Learning Adoption

The Unified Theory of User Acceptance and Use of Technology (UTAUT) is a comprehensive framework that addresses the limitations of individual psychological and behavioral theories by combining and enhancing their variables [18]. UTAUT seeks to establish an empirically supported model for investigating the key determinants of technology adoption intention [19, 20].

The original UTAUT model encompasses four primary variables: performance expectancy, effort expectancy, social influence, and facilitating conditions [21, 22]. These variables influence an individual's technology acceptance and their overall intent to adopt [21, 22].

Social media facilitates extensive interaction and

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communication among students [23], making users susceptible to peer pressure and other social influences. Therefore, this study explores the effects of social influence, self-efficacy, and social media identity on users' behavioral intention to use social media for online learning.

C. Social Media and Online Learning

Online learning initially involves collaborative learning [24], technology-related issues, the shifting role of educators [25], and cooperative communities [26], all contributing to the integration of social media into classrooms. Predictions suggest that over three billion people, around one third of the global population, will join social network sites [27, 28], with Facebook reported as the most popular social network globally in 2017 [27]. In the USA, Facebook and YouTube lead as prominent social media platforms facilitating institutional work [29].

The addition of social networking tools to a traditional classroom transforms it into a space offering learner a universally connected learning experience. This transformation turns a classroom into a "real world" setting, fostering social networks that endure even after university or college graduation, becoming an integral part of students' professional lives. Essentially, the social media-integrated classroom readies students for both their personal and professional futures. Online environments mirror face-to-face interactions, and established theories can describe how individuals present themselves in virtual spaces. In the development of an online presence, identity and personal branding are essential, influencing how individuals represent themselves on the internet [15]. This process of representation begins with self-identity on social networks and online learning platforms.

D. Identification with Social Network

Identity theory posits that individuals develop and maintain their self-identity through social interactions and the feedback received from others. It suggests that one's sense of self is shaped by the roles and expectations associated with various social contexts. In relation to social media, identity theory highlights how individuals utilize online platforms to construct and express their identities, seeking validation and recognition from their online social networks. Social media platforms provide a digital space where users can curate their online personas, share personal experiences, and receive feedback, which in turn influences their self-perception and sense of identity. This relationship between identity theory and social media underscores the significance of online interactions in shaping how individuals present themselves, seek social validation, and form connections in the digital realm.

IT identity model comprising three dimensions (emotional energy, dependence, and relatedness) by Carter [3] was used in this study. The dimensions affect the attitudes of the individual toward social media interaction in online learning that will consequently affect the individual's subsequent social network usage. The strength of the model dimensions is determined by the strength of the person's IT identity. The dimensions are discussed in the following sub-sections.

1) Emotional energy

In the realm of using social networks for online learning, emotional energy can be characterized as the expression of excitement, vigor, and a sense of security, generated by positive past interactions with the social network. This feeling of emotional security arises from optimistic expectations associated with the technology [30]. When an individual feels empowered and in control while utilizing the social network, their self-esteem and sense of security tend to increase.

In the context of describing interactions, prior research has indicated that interactions can extend to both people and objects, influencing individuals' cognitive and behavioral patterns. Nevertheless, interactions with objects have varying effects on people's emotions and ideologies [31]. For example, a dedicated Facebook user may experience anxiety, discomfort, or a sense of disruption when Facebook becomes unavailable, while consistent access to Facebook tends to evoke feelings of joy and comfort. Past studies have shown that these negative emotions and behaviors underscore the importance of the social network and the emotional connections formed through the user's previous interactions with the technology [32, 33]. Consequently, when the device is not accessible, the user perceives a significant part of themselves as missing [30]. Users with a higher level of emotional energy are more likely to experience elevated enthusiasm upon regaining access to the temporarily lost device.

2) Dependence

The continuous accessibility of social networks contributes to individuals' emotional dependency, particularly on their personal accounts. This dependency reflects a strong reliance and self-perception within the framework of the social network [30]. For example, experiencing a whole day without access to the social network can lead to feelings of unease and anxiety, underscoring how the network has become an essential lifeline. Carter and Grover *et al.* [34] concluded that the greater integration of mobile devices into a user's life tends to heighten their reliance on the device. This reliance is particularly evident in social interactions, work-related activities, and leisure pursuits [30]. Moreover, young adults appear to exhibit a higher degree of dependence on their mobile devices, often viewing the device as both a practical tool and a significant aspect of self-perception. Those who consider the mobile device a functional tool typically expresses a sense of inconvenience when the device is unavailable or malfunctions. For young adults, the absence of these devices can evoke feelings of insecurity, vulnerability, anxiety, and even panic [31].

3) Relatedness

In terms of relatedness to a social network, the boundaries between self and technology are not clearly defined. Carter *et al.* [30] depicted this concept by illustrating that individuals who consider their social network an integral aspect of their life might feel incomplete when unable to access it. The absence of the social network could lead to a sense of being lost and a loss of identity tied to technology [30]. People who regard their social network as a means of connecting and communicating with their surroundings tend to exhibit a stronger sense of relatedness to their devices, unlike those

who merely enumerate the activities they can perform through their accounts [34]. Moreover, individuals with heightened feelings of relatedness to their social network are more likely to experience pronounced physical and emotional disconnection from their environment if they lose access to their social network account. On the other hand, individuals who perceive their social network as a significant component of their self-identity tend to develop a sense of relatedness to their social network, coupled with emotional attachment [31].

4) *Self-efficacy*

Self-efficacy is the confidence that a person feels towards his or her capability in planning, organizing, and performing the tasks needed in achieving certain goals. Self-efficacy of students can be linked to their motivation, classroom behavior and student achievement [35]. In information system studies, self-efficacy was found to affect user attitude and perception towards technology implementation and use. Additionally, social media adoption via online learning was greatly affected by self-efficacy of user. Self-efficacy also was found to contribute in the effective use of online learning. Those examining the adoption intention of user of mobile government have reported the influence of computer self-efficacy on the impact of perceived usefulness on the adoption perception of user [36]. In other words, self-efficacy can moderate the impact of perceived usefulness on the adoption perception. Hence, the present study included self-efficacy as a predictor of behavioral intention towards social media usage in online learning course.

II. Social Influence

The impact of social influence seems to be stronger at earlier phases of adoption, because, as clarified by Yu [19], first, society needs to be motivated first and their culture needs to be understood, and only then, usage and acceptance of new technology can happen, and be increased. People learn and act based on what they observed within their social settings. Hence, social influence can affect the decisions to adopt innovation, and as discovered by Rao and Troshani [37], social influence has stronger effect in the earlier phases of adoption, and the effect wanes with continuous use. For students, the types of support provided to them by various members of social network appear to affect the changes that they experience. For instance, it was found that students who could adjust well at the university are those that received high-quality support from their family [38]. In detailing the support, Swenson *et al.* [39] indicated that it could be a fun or relaxing activity, as opposed to an informational or emotional support. During transition to university, Friedlander *et al.* [38] stated that social and emotional support that students receive is usually from their peers. Such support, according to Gall *et al.* [40], contributes to improved mental well-being and the adoption of positive coping strategies among students, a notion supported by Lei *et al.* [41], who underline the role of social network structure, including the individuals within it, and perceived social support in facilitating a successful transition to university.

III. Research Model and Hypotheses

Table I summarizes the latest studies in the information systems field that have utilized IT identity. From the table, it is evident that among the ten most recent studies, only four incorporated perceived social influence, and two included self-efficacy in predicting user attitudes. This observation indicates that out of the ten studies employing IT identity, eight employed it to forecast behavioral intention to use. Consequently, a clear limitation arises in quantifying the moderation of self-efficacy and social influence between IT identity and behavioral intention.

TABLE I: Summary of Related Studies Used IT Identity

No	Aim of study	Field	Source	ITD	SI	SE	BI
1	Information technology identity: a key determinant of feature and exploratory usage.	Information System	[42]	×	×		×
2	COVID-19 infection tracing with mobile apps: acceptance and privacy concerns	Mobile contact tracing application	[43]	×	×		×
3	Intertwining technology acceptance and users' self: IT Identity's mediating role on social presence and deep use of in-home voice assistants	Human computer interaction	[44]	×	×		
4	The Influence of gamification and information Technology identity on postadoption behaviors of health and fitness app users: empirical study in the United States	Health and fitness apps	[45]	×			×
5	The role of information technology mindfulness in the Postadoption stage of using personal health devices: cross-sectional questionnaire study in mobile health	Mobile Health	[46]	×			×
6	To examine the effect of an individual's IT identity and IS infusion role identity on her/his employee-related IS infusion behavior	Information system	[47]	×			×
7	How reliable are self-assessments using mobile technology in healthcare? The effects of technology identity and self-efficacy	Mobile technology in healthcare	[31]	×		×	
8	Information Technology (IT) identity: a conceptualization, proposed measures, and research agenda	Information system	[3]	×			×
9	Mobile technology identity and self-efficacy: Implications for the adoption of clinically supported mobile health apps	Mobile health	[48]	×		×	×
10	The impact of individual's identities on the infusion of information systems within an organization		[47]	×	×		×
	Total number of variables used in all studies			10	4	2	8

Note: ITD: Information Technology identity; SI: Social influence; SE: Self-Efficacy, BI: Behavioral Intention

The hypotheses and research model presented in this study (refer to Fig. 1) were constructed based on a thorough review of existing literature. Fundamentally, this study posited that self-efficacy, social influence, and social network identity are predictors of behavioral intentions. Furthermore, the study proposed that self-efficacy and social influence serve as moderators in the relationship between social media identity and behavioral intentions regarding the use of social media in online learning.

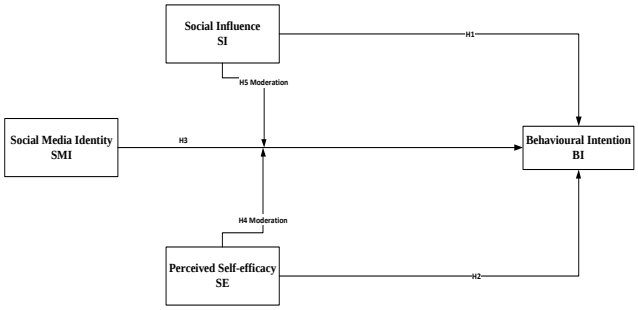

Fig. 1. Proposed research model and hypothesis.

People learn and emulate the behaviors they've observed from their social surroundings. Hence, social influence can greatly affect the decisions of a person in adopting certain innovation. It appears that the effect of social influence is stronger during the earlier phases of adoption, and with continuous usage, the effect weakens [37]. Hays and Oxley [49] additionally mentioned that support received from different members of social network leads to change in students, while Friedlander *et al.* [38] found that students that received high-quality support from family were better at adjusting at the university. In terms of social and emotional support during transition to the university, the researchers stated that students received it more from their peers. The support could improve the mental health of students while encouraging them to utilize more positive coping strategies [40]. Hence, for students, successful transition to university is greatly affected by social network and perceived social support [41]. Therefore, we postulate the following hypothesis:

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H1: Perceived social influence positively influences perceived intention to use social media for online learning.

Social networks can change the efficacy beliefs of people. However, it is still unclear as to how efficacy beliefs are sourced and processed by way of peer interaction. The self-efficacy described as the individual beliefs towards his or her capability in planning, organizing, and performing certain activities to achieve certain learning goals [50]. Self-efficacy of students has been linked to motivation, classroom conduct, and achievement of students [35]. In examining the role of self-efficacy in affecting students' motivational intention for e-learning adoption for their learning purposes, Peng and Hwang [51] found that the confidence towards one's ability in IT devices usage could motivate use as needed. In their study, Rana *et al.* [52] found an impact of self-efficacy on information system (IS) adoption, while Alalwan *et al.* [53] reported a strong effect of self-efficacy on the use of the mobile devices and the internet. As such, the present study presented the following hypothesis:

H2: Perceived self-efficacy positively influences perceived intention to use social media for online learning.

Within the context of online learning, the subject of self-identity has not been examined. However, as reported by Pan *et al.* [54], the newly established concept of technology identity has not been sufficiently studied in terms of usage behavior that has been found to affect adoption. In their study, Carter and Grover [55] mentioned the ability of IT identity to cause resistance and also technology adoption.

The positive effect of social network on behavioral intention to use a technology and grade point averages has been reported by quite a few studies [17, 56]. In another study, Singh *et al.* [57] reported the ability of social networking in increasing education quality owing to its usage among students to share their learning experiences. Also, using social media features affect the intention of students to use social media in their online learning courses [58]. Pan *et al.* [54] found that students who possess a strong sense of dependence, relatedness, or emotional engagement with their social media platforms demonstrate a greater inclination to utilize social media for online learning, as these students are capable of amplifying the mentioned emotions as dimensions of their identity. The following hypothesis was hence proposed:

H3: Social media identity positively influences perceived intention to use social media for online learning.

Higher perceived computer self-efficacy increases the person's self-identification with IT. Carter [3] relevantly reported that a person with lower computer self-efficacy will see him- or herself separate from technology. Low self-efficacy decreases the person's intent to utilize online learning application for self-reporting. Also, such person is less efficient and less attentive in their usage of online learning, like mobile learning. Hence, self-efficacy clearly impacts the relationship between social media identity and behavioral intention to use online learning, by moderating the relationship. According to Carter and Grover [55], the strength of IT identity is intensified with the three factors

namely computer self-efficacy, IT embeddedness, and realized reward. As such, the following hypothesis was proposed:

H4: When perceived self-efficacy is higher, a stronger relationship between social media identity and the behavioral intention to use online learning is produced.

The personal identity is usually shared in line with the public identity. A person's social media adoption is to impose social inclusion through the demonstration of identical behavior within the preferred social group [59]. Walker and Lynn [6] stated, the prominence of an identity impacts how a person establishes his or her role-based social connection, and indicated that those possessing striking identities may stimulate and cultivate relationships between people in their own group and with the rest in their personal social network. Social identity theory suggests that social behavior is determined by the person's character and motivations (interpersonal behavior), and also by the affiliation of the person to his or her group (i.e., intergroup behavior). In general, a person would strive to preserve the positive image of his or her group of affiliation. Hogg [60] stated that the process of social identity stimulates the individuals to look for the desired traits, attitudes, and behaviors that characterize their group. Hence, we proposed the following hypothesis:

H5: When perceived social influence is higher, a stronger relationship between social media identity and behavioral intention to use mobile learning is produced.

IV. Method

The aim of this paper is to investigate the utilization of a social network, anchored in social media identity, social influence, and self-efficacy, in the realm of online learning. The methodology employed in this study has been developed based on metrics extrapolated from an extensive review of the current literature. Employing a quantitative approach, the research employs a semi-structured questionnaire as its primary data collection instrument. Participants completed the questionnaire online. The specifics of the data collection process for the study are elaborated upon in the subsequent subsections.

A. Participants and Procedure

The questionnaire, originally in English, was professionally translated into Arabic to facilitate the data gathering process. The study collected all data through an online survey (Google Forms), and participants were randomly selected, voluntarily chose to participate, and responded anonymously. A total of 362 adults completed the online questionnaire. To simplify measurement, all construct items were accompanied by a five-point Likert scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree). For further details, please refer to Appendix Table A.

B. Sample Profile

The sample profile section includes items that gather information about respondents' age, gender, education level, and usage of social media sites/apps. As indicated in Table II, 52.5% of the respondents fell within the age group of 25 to 39, and approximately half (53.6%) were female (n = 194). A majority of the respondents were undergraduates (66.3%, n = 240), while the remaining 33.7% had pursued education up to the postgraduate level. Among the respondents, the majority (43.4%, n = 157) reported using social media every day, with a small percentage (8.6%) indicating hourly usage. Only 2.8% (n = 10) stated that they did not use social media. The demographic characteristics of the study participants are summarized in the following Table II.

TABLE II: Demographic Profile of Consistency

Demographic groups	Ranks	Frequency	Percent
Age	24 and under	22	6.1
	25 to 29	81	22.4
	30 to 39	109	30.1
	40 to 49	78	21.5
	50 to 59	44	12.2
	60 and above	28	7.7
Gender	Male	168	46.4
	Female	194	53.6
Education Level	Diploma	89	24.6
	Bachelor's Degree	151	41.7
	Master's degree	86	23.8
	PhD	36	9.9
Social Media usage	Occasionally	10	2.8
	Monthly	59	16.3
	Weekly	105	29.0
	Daily	157	43.4
	Hourly	31	8.6
Total		362	100.0

C. Descriptive Analysis

Before testing the hypotheses, Confirmatory Factor Analysis (CFA) was conducted on the dimensions of the study (social media identity, social influence, self-efficacy, and behavioral intention). CFA was deemed appropriate for this study due to the exploratory nature of the dimension attributes. Smart-PLS 3.3 was employed for the execution of CFA. Following the establishment of factor loadings, discriminant validity was evaluated based on the Fornell–Larcker criterion, the results of which are presented in Table III.

Furthermore, the reliability and validity of the measurement model were assessed. Factor loadings were calculated, and in accordance with Hair *et al.*'s [61] recommendation, factor loadings of ≥0.4 were achieved. The results indicated factor loadings ranging between 0.71 and 0.96, thereby meeting Hair *et al.*'s [61] criteria.

Convergent validity was affirmed when Average Variance Extracted (AVE) estimates exceeded 0.5 for all model variables, indicating strong convergence within the measurement model. The study also evaluated construct reliability using Composite Reliability (CR) estimates [62]. Values ranging from 0.72 to 0.98 were attained, surpassing the threshold of 0.7 as recommended. Additionally, construct reliability was assessed using the rho_A reliability coefficient, and the obtained values for each measurement construct were above the recommended threshold of 0.70 [63].

In summary, the measurement model demonstrated favorable reliability and validity characteristics, as evidenced

by the achieved factor loadings, AVE estimates, CR values, and rho_A coefficients, as outlined in Table III.

TABLE III: MEASUREMENT MODEL PARAMETER ESTIMATION

Constructs	Items code	Factor Loading	Mean	S.D.	rho_A	CR	AVE
SMI/Dependence	DEP1	0.86	3.26	0.82	0.82	0.89	0.73
	DEP2	0.86					
	DEP3	0.84					
SMI/Emotional energy	ENG1	0.79	3.6	0.79	0.76	0.86	0.68
	ENG2	0.83					
	ENG3	0.85					
SMI/Relatedness	RELAT1	0.83	3.59	0.86	0.82	0.89	0.73
	RELAT2	0.91					
	RELAT3	0.82					
TID					0.88	0.90	0.50
SE	SE1	0.98	2.68	0.88	0.97	0.98	0.94
	SE2	0.96					
	SE3	0.96					
SI	SI1	0.91	3.60	0.83	0.79	0.88	0.71
	SI2	0.90					
	SI3	0.70					
BI	PI1	0.80	3.53	0.71	0.73	0.82	0.53
	PI2	0.77					
	PI3	0.61					
	PI4	0.72					

Note: SD: Standard Deviation; CR: Composite Reliability; AVE: Average Variance Extracted; CA: Cronbach's Alpha, SMI: Social Media Identity

V. DISCRIMINANT VALIDITY

The discriminant validity can be determined using several methods including cross-loading, HTMT, and Fornell-Larker principle. In this study, Fornell-Larcker principle [64, 65] was used in discriminant validity determination. In assuring discriminant validity in a reflective measurement model, the attained Fornell-Larker value for each construct should be in the range between 1.0 and −1.0 as recommended by Hair *et al.* [61]. A bootstrapping technique was then executed, involving 5000 samples. The discriminant validity of the construct is affirmed when the resultant Fornell—Larker value confidence interval is lower than 1. Results displayed in Table IV affirmed that the constructs had discriminant validity.

TABLE IV: DISCRIMINANT VALIDITY TEST (FORNELL–LARCKER)

	BI	DEP	ENG	RELAT	SE	SI
BI	0.73					
DEP	0.58	0.86				
ENG	0.71	0.62	0.82			
RELAT	0.47	0.60	0.43	0.85		
SE	0.60	0.60	0.62	0.41	0.97	
SI	0.58	0.55	0.55	0.40	0.50	0.84

VI. RESULTS OF PATH ANALYSIS

A. Model Fit

This study employed Goodness of Fit indices as recommended by previous research [64]. Accordingly, the acceptable values for indicating a good fit are as follows: less than 0.08 for Standardized Root Mean Square Residuals (SRMR) and greater than 0.95 for Normed Fit Index (NFI). The results demonstrated a good fit (SRMR = 0.07; NFI = 0.76). Additionally, the RMS_theta value was 0.19, which remains within the acceptable range of 0.12 or lower. Overall, the results indicated a reasonably well-fitting model. Henseler *et al*. [64] aptly noted that the use of PLS can aid in identifying numerous measurement model misspecifications, provided a composite factor model is assumed and the model is validated through tests of exact fit and/or SRMR.

B. Hypotheses Testing (Direct Effects Analysis)

Structural equation modelling technique was executed using SmartPLS 3.3, to test the study hypotheses. Accordingly, outcomes of path coefficient and *p* value of the structural model are displayed in the following Fig. 2. Based on the results, H1, H2, and H3 was supported. Specifically, H1 proposed positive impact of SI on perceived BI to use social media for online learning, and the detailed results are as follows: $\beta = 0.22$ $t = 4.66$, and $p < 0.01$. H2 proposed positive impact of SE on perceived BI to use social media for online learning, and the detailed results are as follows: $\beta = 0.18$, t = is 4.19, and p value < 0.01. H3 was supported as well, specifically, H3 proposed positive impact of SMI on BI to use social media for online learning, and the detailed results are as follows: $\beta = 0.45$, $t = 10.01$, and $p < 0.01$.

C. Hypotheses Testing (Moderating Effects Analysis)

Self-efficacy (SE) and Social Influence (SI) were analyzed in terms of their moderation effect on the relationship between Social Media Identity (SMI) and Behavioral Intention (BI) to use social media in online learning. The hypothesised relationships were stated in H4 for SE and H5 for SI. PLS-SEM and bootstrapping procedure were employed. As shown in Table V and Fig. 2, the interaction between SE and SMI was linked to behavioral intention to use social media in online learning ($\beta = -0.16$, $p < 0.01$). Hence, based on the results, when SE is increasing by one unit, that will lead to a weaker relation between SMI and BI by 0.16 unit. In other words, SE is significantly moderate the relationship negatively, and so, H4 was rejected. But for SI, in terms of its moderation effect between SMI and BI, the outcome was $\beta = 0.11$, $p < 0.01$. Hence, the increase of the moderating effect of SI in one unit will increase the regression coefficient of SMI as independent variable to BI as the dependent variable by 0.11 unit. In other words, SI is significantly moderate the relationship, and so, H5 was supported.

TABLE V: STRUCTURAL EQUATION MODELING RESULTS

Hypothesis	Relationship	β	t Statistics	p values	Direction	Decision
H1	SI → BI	0.22	4.66	0.00	Positive	Supported
H2	SE → BI	0.18	4.19	0.00	Positive	Supported
H3	SMI →BI	0.45	10.01	0.00	Positive	Supported
H4	SMI*SE → BI	−0.16	3.66	0.00	Negative	Rejected
H5	SMI*SI → BI	0.11	2.74	0.01	Positive	Supported

Note: SE: Self-Efficacy; SI: Social influence; SMI: Social media identity; BI: Behavioral Intention
Note: * Moderation effect

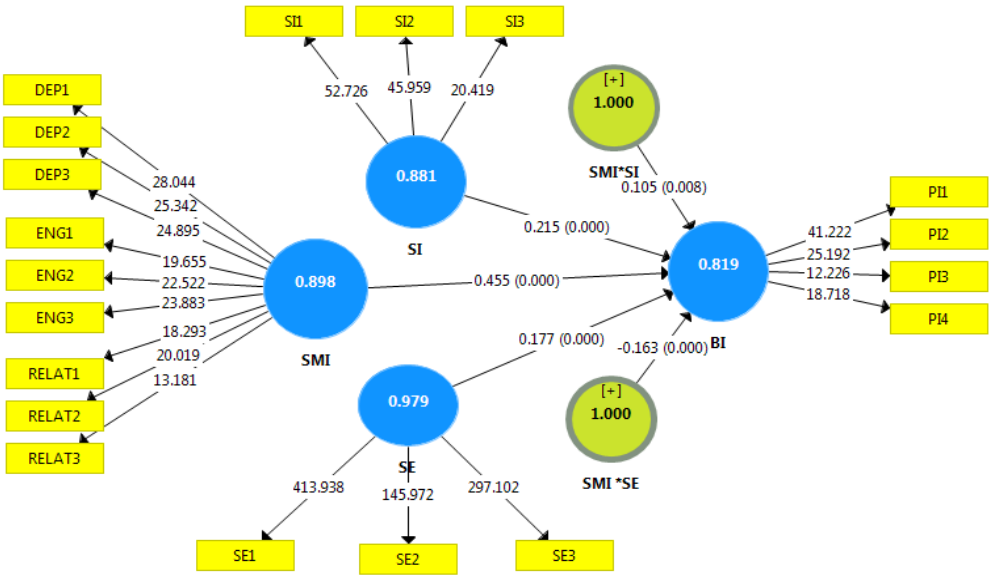

Fig. 2. The results of the proposed model.

VII. DISCUSSION

The use of social media in online learning is becoming increasingly common today, raising the need to scrutinize its impact on students' behavioral intention towards online learning [66]. This study examined the utilization of social networks, encompassing social media identity, social influence, and self-efficacy in online learning. Specifically, it aimed to understand how social media identity influences students' intention to use social media in online learning, with self-efficacy and social influence as moderators.

Social media is notably influenced by peer pressure, which in turn is connected to social influence. In this study, the positive impact of perceived social influence on the intention to use social media for online learning was established (β = 0.215, p < 0.01), highlighting its significance in learning. Amin *et al.* [67] also reported a relevant positive and significant impact of social influence on online learning adoption.

The potential of social media in shaping efficacy beliefs has been reported, given its ability to provide access to information and peer support [68]. Skaalvik and Skaalvik [50] defined self-efficacy as a person's confidence in planning, organizing, and performing tasks to achieve specific learning goals. Other researchers [35] noted a link between students' self-efficacy, motivation, classroom behavior, and achievement. The present study affirmed a positive impact of perceived self-efficacy on the intention to use social media for online learning (β = 0.177, p < 0.01). Peng and Hwang [51] found self-efficacy to be an expressive precursor to motivation for e-learning adoption, underlining its significance for students' intent to use social media in their learning. Therefore, instructors should take measures, such as creative projects and internet-based training, to enhance students' self-efficacy and stimulate their interest in using social media for learning.

Social networks have been found to positively impact technology adoption and grade point averages [17, 56]. The study's results demonstrated a positive impact of social media identity on the perceived intention to use social media for online learning (β = 0.455, p < 0.01), highlighting the positive contribution of social media identity to the learning process. Students with high dependence, relatedness, or emotional engagement towards social media appear motivated to adopt it for online learning, as social media intensifies identity-related feelings [54]. Frequent social media use enhances integration and coordination, augmenting expertise in learning through this medium. Carter [3] indicated that identity theory's relatedness aspect describes the interaction between users and their social media. Moreover, those strongly identifying with IT are more likely to adopt social media for online learning.

Interestingly, self-efficacy was found to negatively moderate the relationship between social media identity and the intention to use social media in online learning (β = −0.16, p < 0.01). This contradicts the hypothesized positive moderation effect, suggesting that higher perceived self-efficacy increases self-identification [55], and simultaneously, higher self-efficacy leads to greater intention to use [69]. The study speculates that formally educated

students are more sceptical about the safety and quality of the technology they using [31] and that what caused the negative effect based on our sample because they are university students.

The information shared by students in discussion forums reflects their assumptions, values, beliefs, and expectations about learning and their educational institution, along with their personal experiences [70]. This contributes to the formation of value in shared forum spaces [71]. Consequently, what students contribute to the social network unveils their multi-dimensional and dynamic identity, influenced by students' self-perceptions of legitimacy and others' perception of them. Learning through social media empowers learners to control their development, seeking assistance from others for personal growth [72]. For students, social media allows asynchronous and synchronous learning through rich social and cultural interactions with other users.

Alturki and Aldraiweesh [73] relevantly highlighted the need to consider social influence's impact on students' interest in mobile learning. Social influence was found to positively moderate the relationship between social media identity and the intention to use social media in online learning ($\beta = 0.11$, $p < 0.01$). They emphasized that social media's pervasive and social nature enables continuous two-way communication, allowing students to engage and check others' posts on a shared platform. Those heavily relying on social media for online learning tend to be more cautious and accurate in their learning, perceiving social media as a necessity. Additionally, increased dependence on social media is positively correlated with heightened engagement [74], fostering effective learning through this medium. In general, users regularly provide input and receive output through social media, making highly engaged and dependent users more likely to learn effectively in online learning through social media.

A. Theoretical Contributions

The present study contributes to the theoretical literature in several ways. Additionally, it highlights the significance of social media identity in influencing behavioral intention. It appears that individuals heavily reliant on social media for online learning tend to approach their studies more cautiously. The belief in the necessity of social media fosters dependency, which, as established in the literature [74], is positively linked to engagement. Consequently, an engaged and dependent social media user is likely to achieve more effective learning outcomes in online learning.

The study's proposed model offers comprehensive insights into three distinct categories of individual-level usage behaviors, aimed at enhancing social media utilization in online learning. The model incorporates feelings of dependence, relatedness, or emotional engagement as components of social media identity. The findings reveal that emotional engagement, rather than dependence and relatedness, leans towards social media use in online learning courses. Furthermore, the confirmed moderating impacts of social media identity contribute to a deeper understanding of how this identity influences social media use in online learning. The results indicate that high self-efficacy negatively impacts the relationship between social media identity and its use in online learning, whereas high social influence has a positive impact on social media utilization in online learning.

B. Practical Implications

In practice, the study's findings hold significant value for practitioners, especially social media developers, who can enhance user behavior by providing appropriate online platforms and tools for students and instructors in online courses. Making social media accessible to online learners is crucial for media providers. Universities should focus on boosting self-efficacy, social influence, and social media identity among online learners, given that this study highlights self-efficacy as a key antecedent to motivation. Instructors should strive to amplify students' intention to use social media for learning by enhancing their academic self-efficacy through methods like internet-based training and innovative projects that spark student interest.

Results indicate that students' social media identity can facilitate learning and improve student-lecturer communication. Hence, both social media providers and university instructors should intensify efforts to enhance communication among students and between students and instructors. Guiding students in crafting their social media identity, such as through study groups and assignments, with a focus on group cohesion and healthy competition, can be beneficial. Moreover, students should receive support in becoming familiar with their peer groups.

C. Limitations and Future Work

There are several limitations to this study. Firstly, it did not specify the type of social media, focusing instead on the broader concept. Additionally, the study's findings could only be generalized to individuals within socially oriented communities, such as social networking sites and friendship groups where intimate relationships are established among members. This generalization does not extend to groups defined by demographics, hobbies, common interests, or professions. Therefore, similar research involving more universities is recommended to enhance generalizability and facilitate comparisons. Furthermore, utilizing diverse samples is advisable, allowing for the categorization of respondents based on factors like age and education level. Future studies should consider incorporating variables like performance expectancy to assess its influence on the behavioral intention to use social media in online learning. Exploring individual constructs in relation to academic achievement could also yield valuable insights.

VIII. Conclusion

The present study examined the potential impact of social media identity attributes (dependence, emotional energy, and relatedness) on the behavioral intention of students to use social media in online learning. The integration of social media into online education has brought about changes affecting both learners and instructors. The moderation effect of self-efficacy and social influence on the relationship between social media identity and behavioral intention was

examined and confirmed, contributing to a deeper understanding of this construct's influence on social media use in online learning.

The results revealed a significant positive impact of social media identity, self-efficacy, and social influence on behavioral intention. Notably, the attribute of emotional engagement, as opposed to dependence and relatedness, showed a stronger orientation towards social media use in online learning courses. Moreover, high self-efficacy negatively impacts the relationship between social media identity and the behavioral intention to use social media in online learning, while high social influence positively affects social media use. This study's insights will benefit both social media providers and universities in promoting effective learning and facilitating student-student and instructor-student interactions.

APPENDIX

TABLE A: CONSTRUCTS AND RELATED ITEMS ADAPTED TO BUILD THE QUESTIONNAIRE

Constructs	Items	Sources
Dependence	Thinking about myself in relation to a social media, I feel dependent on social media.	[30, 31]
	Thinking about myself in relation to a social media, I feel needing the social media.	
	Thinking about myself in relation to a social media, I feel reliant on the social media.	
Emotional Energy	Thinking about myself in relation to a social media, I feel energized.	[30]
	Thinking about myself in relation to a social media, I feel enthusiastic about the social media.	
	Thinking about myself in relation to a social media, I feel pumped up	
Relatedness	Thinking about myself in relation to social media, I am Connected with social media	[3]
	Thinking about myself in relation to social media, I am in coordination with social media	
	Thinking about myself in relation to social media, I am Close with social media	
Social Influence	My friend will support my decision to use social media in my online learning.	[75]
	Important people for me, like my friends or family, think I have to use social media.	
	Information or news in the media gives me a pleasant feeling about using social media in my online learning.	
Self-efficacy	I believe I can complete online learning using social media if there was no one around to tell me what to do.	[30, 31]
	I believe I can complete online learning using social media even if I have never used a similar technology before.	
	I am confident that I can effectively study online using social media	
Intention to use	I have intention to use social media in leaning online.	[75]
	Before studying online course, I looked for information about certain courses that might be on social media.	
	I will consider the opinions that others have indicated on social media on existing online courses.	
	Information offered by certain organization on social media can determine which course I will take	

CONFLICT OF INTEREST

The authors declare that there are no competing financial interests or personal relationships that could have influenced the work reported in this paper.

AUTHOR CONTRIBUTIONS

Ibrahim Almarashdeh: Conceptualization, Analyzing the data, Methodology, Writing Original draft preparation. Malek Alzaqebah: Data collection, literature review, Writing-Reviewing and Editing. All authors had approved the final version.

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