



THE ROLE OF SOCIAL NETWORKS IN SECONDARY EDUCATION STUDENTS' LEARNING BEHAVIOR AND DECISION-MAKING

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Abstract:

The increasing use of social networking platforms has significantly reshaped students' communication patterns and learning behaviors, particularly in the post-COVID-19 digital environment. Although platforms such as Facebook and Instagram are widely used, their role in supporting educational activities is underexplored, especially among secondary education students in Greece. This study investigates the determinants shaping students' adoption and use of social networking platforms through the theoretical framework of the Technology Acceptance Model (TAM). Data were collected from a randomly selected sample of 312 secondary educational students in Greece was analysed to investigate their engagement with social networking platforms, focusing on Facebook and Instagram. The findings indicate that students use these platforms daily, primarily for communication and entertainment purposes while a considerable proportion also utilize them for educational activities. For Facebook, the analysis revealed substantial strong positive correlations between Perceived Usefulness (PU) and Perceived Ease of Use (PEoU) between Behavioral Intention (BI) and PU, and Actual Use (AU) and PU, and AU and BI. Similarly, Instagram demonstrated robust strong positive correlations were observed between PU and PEoU, BI and PEoU, BI and Attitudes (ATT), BI and PU, AU and PU, and AU and BI.

Keywords:

Secondary Education, Social Networks, Technology Acceptance Model, Students, Facebook, Instagram.

INTRODUCTION

The rapid proliferation of social networking platforms has profoundly altered adolescents' everyday experiences, particularly in terms of communication, information exchange, and educational engagement [1]. Among the most widely used platforms, Facebook and Instagram have emerged as dominant environments where students interact, share content, and increasingly engage with educational material [2].

Following the digital acceleration during and after the COVID-19 pandemic, students have become more reliant on online environments not only for social interaction but also for academic support and information seeking [3].

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This shift raises important questions about how social networking platforms influence students' learning behaviors, perceptions, and decision-making processes [4].

Although previous studies have extensively explored the role of social networks in higher education and professional settings, empirical evidence relating specifically to secondary education remains limited [5], particularly in Greece. Examining how students perceive the PU and PEoU of social networking platforms is essential for evaluating their integration into both formal and informal learning environments [6], [7].

The main aim of this study is to identify the factors that influence students' intentions to use Facebook and Instagram for educational purposes. To address this objective, the TAM was employed using data collected from a randomly selected sample of 312 students in Greece between September 15, 2025, and February 10, 2026. TAM has been widely applied in prior research as a robust framework for examining BI and technology acceptance.

2. TECHNOLOGY ACCEPTANCE MODEL (TAM)

The TAM, introduced by Davis et al. [8], includes several key constructs such as PEoU, PU, attitude towards use (ATT), and AU. Over the years, the model has been extended through versions such as TAM 2, TAM 3, and Unified Theory of Acceptance and Use of Technology (UTAUT) [9], [10]. The version applied in this study is an adapted form of the original model, incorporating five constructs [9].

PU reflects the degree to which students consider social networking platforms beneficial for improving their academic performance. PEoU describes how effortless these platforms are perceived to be. ATT captures students' overall evaluation of using social networks, while BI represents their willingness to continue using them. AU refers to how frequently and effectively these platforms are utilized.

While AU is considered the outcome variable (Figure 1), the relationships among the model's constructs are also important. PEoU is expected to affect both PU and ATT. Subsequently, PU influences ATT and BI, whereas ATT impacts BI, which ultimately leads to AU.

3. RESEARCH METHOD

3.1. SAMPLING METHOD AND PARTICIPANTS

In this study, Facebook and Instagram, were chosen because they are among the most frequently used social networking platforms by students [11], [12]. The questionnaire was designed based on the framework introduced by McGowan et al. [13] to measure TAM-related variables. A total of 350 students participated in the survey, of which 312 responses were complete and suitable for analysis, resulting in a response rate of 89.1%. The sample included 49.4% male and 50.6% female participants. Regarding educational level, 51.9% of participants were middle school students, while 48.1% attended high school. Participants' ages ranged from 13 to 18 years. Moreover, participants who use the social network Facebook accounted for 63.1%, while 84.9% reported using Instagram. Specifically, 31.4% of the students were aged between 13 and 14 years, 35.9% between 15 and 16 years and 32.7% between 17 and 18. This distribution ensures adequate representation across all stages of secondary education. The analysis of students' usage patterns revealed that Facebook and Instagram are widely used daily. More specifically, 14.7% of the participants reported using Facebook and Instagram for less than one hour per day, 33.3% for one to two hours, and 17% for more than four hours daily. Regarding the purpose of use, most students 85.9% reported using Facebook and Instagram primarily for communication with classmates, while 78.2% indicated entertainment as a key purpose. Notably, 51.9% reported using these platforms for educational purposes, such as exchanging notes or seeking help with homework, and 37.8% followed

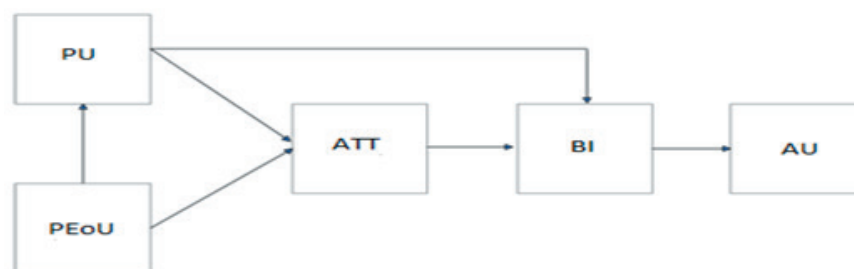


Figure 1. TAM [9][10]



educational pages or groups. When asked about the frequency of using social media specifically for educational activities, 12.2% reported that they never use them for such purposes, 26.9% rarely, 35.9% sometimes, 17.9% often, and 7.1% very often. A comparison between middle school and high school students showed that High School students tend to use Facebook and Instagram more frequently for educational purposes, whereas Middle School students use them mainly for entertainment and social interaction. This indicates a shift toward more goal-oriented usage as students.

3.2 INSTRUMENT TRANSLATION

To ensure accuracy in language adaptation, the questionnaire was translated from English into Greek by two independent translators. Their versions were compared, and a final version was agreed upon. This version was then translated back into English by a third bilingual translator, following established cross-cultural translation guidelines [14]. Minor differences between the original and back-translated versions were resolved

through collaboration among the translators, resulting in the final Greek version of the questionnaire. To adapt the questionnaire to the data from the public Schools in Greece, it was modified after the researchers communicated with four professional teacher educators from universities of education. The questionnaire consists of two sections: The first section involves demographic data such as gender, age, educational level, social networks, frequency of use, and purpose of use (Table 1). The second section involves the TAM variables (Table 2).

3.3 RESEARCH HYPOTHESES

The research hypotheses are as follows [5], [10].

- H1: PU of social network use by students is positively influenced by their PEOU in specific social networks.
- H2: ATT of social network use by students is positively influenced by their PEOU of the specific social networks.
- H3: ATT of social network use by students positively influenced by their PU of the specific social networks.

Table 1. Overview of demographic characteristics

		Frequency	Percentage
Gender	Male	154	49.4%
	Female	158	50.6%
Age	13-14	98	31.4%
	15-16	112	35.9%
	17-18	102	32.7%
Educational Level	Middle School	162	51.9%
	High School	150	48.1%
Social Networks	Facebook	197	63.1%
	Instagram	265	84.9%
Daily Use of Social Networks	<1 hour	46	14.7%
	1-2 hours	104	33.3%
	2-4 hours	109	34.9%
	>4 hours	53	17%
Frequency of Educational Use	None	38	12.2%
	Very active	22	7.1%
	Occasional daily use	112	35.9%
	Several times per week	56	17.9%
	Seldom	84	26.9%
Purpose of Use	Communication	268	85.9%
	Entertainment	244	78.2%
	Educational use	162	51.9%
	Educational pages/groups	118	37.8%
	Communication with teachers	64	20.5%



- H4: BI of social networks to a student is positively influenced by their PU regarding the specific social networks.
- H5: BI of social networks by a student is positively influenced by their ATT related to specific social networks.
- H6: AU of social networks by a student is positively influenced by the BI of the specific social networks.

3.4. FACE VALIDITY AND MEASURES INSTRUMENTS

From the initial pool of 32 items, 28 were retained following the face validity assessment, while the excluded items are indicated in bold in Table 2. Additionally, one item within the PEOU construct was phrased in reverse to minimize the risk of respondents answering automatically without careful consideration. Responses were assessed using a five-point Likert scale, where 1 represented the most negative evaluation and 5 represented the most positive.

3.5. CONTENT RELIABILITY AND VALIDITY

Exploratory Factor Analysis with varimax rotation was applied to examine the structure of the measurement scale. Internal consistency was assessed using Cronbach's alpha coefficient [15]. All reliability coefficients exceeded the acceptable threshold of 0.70 (ranging from 0.79 to 0.97), indicating satisfactory internal consistency [16], [17], [18]. The Kolmogorov-Smirnov test was used to assess the normality of the data prior to conducting parametric tests. Correlations analysis was used to examine the strength and direction of relationships between variables. A negative correlation suggests that as one variable increases, the other decreases. The Kruskal-Wallis test is a non-parametric method used to assess whether samples originate from the same distribution [19]. Date analysis was performed using the open-source software Statistical Processing PSPP v.1.4.1. [20].

4. RESULTS

4.1. EXPLORATORY FACTOR ANALYSIS

The Kaiser–Meyer–Olkin (KMO) index, which assess sampling adequacy and the extent to which variables share common variance on a scale from 0 to 1 [21]. All factors recorded KMO values above 0.60, indicating that the sample was suitable for analysis. Next, Bartlett's test of sphericity was applied to determine whether significant correlations exist among the variables [22]. Since all factors showed $p=0.000$; the null hypothesis $p<0.05$ was rejected (Table 3). Furthermore, all initial loadings exceeded 0.50, suggesting that each item contributed meaningfully to the overall model [23]. Overall, the questionnaires demonstrated satisfactory validity. More specifically, factor analysis across all constructs accounted for more than 65% of the total variance, supporting its suitability for use in the context of Facebook and Instagram. This result indicates that the factor model adequately explains the data while minimizing the influence of random and individual variation within the sample. Although the analysis initially yielded both one - and two - factor solutions, a single-factor structure was ultimately adopted. Detailed results for each factor are provided in Table 2.

4.2. NORMALITY TESTS

The Kolmogorov–Smirnov test showed that the data were not normally distributed. Therefore, non-parametric statistical methods were employed.

4.3. CORRELATIONS BETWEEN TAM FACTORS AND DEMOGRAPHIC CHARACTERISTICS

Based on the results presented in Table 3, the analysis indicates that AU is positively correlated with Daily Use for both Facebook ($r=0.61$) and Instagram ($r=0.68$). In addition, BI demonstrates a positive correlation with Daily Use across both platforms Facebook ($r=0.63$) and Instagram ($r=0.63$). Furthermore, AU is positively linked with overall Social Networks Use Facebook ($r=0.60$) and Instagram ($r=0.65$). Finally, BI also shows a positive correlation with Social Networks usage ($r=0.65$) for Instagram.



Table 2. Principal component factor analysis using a correlation matrix with varimax rotation

Questionnaire items	Facebook		Instagram		
	PEoU	Fact 1	Fact 2	Fact 1	Fact 2
I find social networks easy to use		.81		.88	
Learning to use social networks is easy for me		.84		.91	
It is easy to navigate on the platform		.79		.87	
I can quickly find the content I want		.74		.83	
I can use the platform without help		.76		.85	
The platform is user-friendly			.82		.86
The interface is clear and understandable			.79		.84
I find it difficult to use all features of the platform					
	PU	Fact 1	Fact 2	Fact 1	Fact 2
Social networks help me communicate with classmates		.88		.91	
Social networks help me stay informed		.84		.87	
Social networks help me collaborate for schoolwork		.81		.79	
Social networks improve my productivity in school tasks		.77		.82	
Social networks help me understand lessons better					.78
Social networks provide useful educational content			.83		.80
Social networks help me exchange ideas with others		.79	.86	.85	
Social networks improve my overall learning experience			.88		.84
Social networks distract me from school tasks					
	ATT	Fact 1		Fact 1	
I find using social networks enjoyable		.81		.88	
Social networks are engaging to use		.84		.90	
Social networks contribute positively to my life		.78		.86	
I feel at ease when using social networks		.75		.83	
Social networks are valuable for students		.72		.80	
Social networks make me feel stressed; I feel that I waste time on social networks					
	BI	Fact 1		Fact 1	
I intend to continue using social networks daily		.95		.97	
I intend to use social networks regularly		.96		.98	
I will keep using social networks in the future		.97		.99	
	AU	Fact 1		Fact 1	
I possess the necessary skills to use social networks daily		.86		.90	
I have the skills to use social networks effectively		.83		.88	
I am knowledgeable about how to use social networks		.81		.85	
If I need assistance with an issue, I know where to find guidance on using social networks properly		.78		.84	
I have successfully used social networks effectively many times in the past		.83		.73	



4.4. CORRELATIONS AMONG TAM FACTORS

Table 4 summarizes the correlations identified among the examined TAM variables. For Facebook, a strong positive correlation is observed between PU and PEoU ($r=0.74$). Similarly, strong positive correlations are identified between BI and PU ($r=0.71$), AU and PU ($r=0.68$), BI and ATT ($r=0.66$), as well as AU and BI ($r=0.67$). Regarding Instagram, the findings also reveal strong positive correlations between PU and PEoU ($r=0.78$), BI and PEoU ($r=0.70$), ATT and PU ($r=0.69$), BI and ATT ($r=0.73$), BI and PU ($r=0.76$), AU and PU ($r=0.71$), and AU and BI ($r=0.72$).

4.5. DIFFERENCES IN STUDENTS' EDUCATIONAL LEVEL

Differences between students' educational levels (Middle School and High School) were examined using the Kruskal-Wallis test ($**p<.05$). For both Facebook and Instagram, High School students had higher average PU, BI, and AU, indicating a more frequent and purposeful use of social networks for educational activities.

Regarding PEoU, Middle School students reported slightly higher averages for both Facebook and Instagram, suggesting that younger students find these platforms easier to use, mainly for communication and entertainment purposes. No meaningful differences in ATT were detected between the two categories across either platform.

5. DISCUSSION

In the present research, students reported daily use of social networks, primarily for communication and entertainment, but also for educational purposes (Table 1). Similarly, Muliadi et al. [24] found that students use social networks for information exchange and peer interaction and Ghimire [25] reported that students use social networks to access academic resources and support their commenting on publicly available information. Moreover, we found that students use Instagram, while Ghimire [25] reported that students tend to prefer Facebook over other social networks. The results showed strong positive correlations between factors of TAM.

A strong positive correlation was observed between PU and PEoU, consistent with previous research findings [26]. Furthermore, BI was found to be strongly positively correlated with PU [27]. Additionally, significant positive correlations were identified among AU and PU, AU and BI, and BI and ATT, supporting the correlations reported in earlier studies [28]. In the case of Instagram, the analysis also revealed a strong positive correlation between PU and PEoU, in agreement with prior empirical evidence [26]. Similarly BI showed strong positive correlations with both PU and PEoU [27]. Moreover, additional strong correlations were observed among BI and ATT, BI and PU, and AU and PU, further confirming findings reported in the literature [28]. In addition, a strong positive correlation was found between AU and PU, which is in line with the findings of Bardakci [29]. Moreover, we found a strong positive correlation between ATT and PU, which is in line with the findings of Songkram et al. [30]. Overall, not all proposed hypotheses (H1, H2, H3, H4, H5, and H6) were supported by data, indicating partial validation of the research model.

Table 3. Statistically significant correlations between TAM factors and demographic variables: $**p<.05$, $*p<.10$

Attack Type	Gender	Age	Education level	Daily Use (hours)	Frequency of Educational Use	Purpose Communication	Purpose Entertainment	Purpose Educational Use	Social Networks
FB PEoU		-.21**	.14*	.42**	-.26*	.31**	.28**	.22*	.33**
IG PEoU		-.18**	.09*	.46**	.29**	.35**	.33**	.25*	.34**
FB ATT	.12**	-.17*	.18*	.51**	.54**	.27*	.33**	.54**	.51**
IG ATT	.15*	-.16*	.13	.56**	.57**	.30**	.37**	.52**	.51**
FB PU		-.15*	.19**	.48**	-.56**	.44**	.36**	.51**	.74**
IG PU				.52**	.59*	.47**	.39**	.54**	.47**
FB BI			.17*	.55**	-.53*	.52**	.41**	.48**	.55**
IG BI	.16*	-.14*		.63**	.56**	.58**	.50**	.51**	.65**
FB AU		-.18*	.15*	.61**	.48**	.49**	.45**	.44**	.60**
IG AU	.12**	-.16*	.10	.68**	.52**	.55**	.53**	.47**	.65**



Table 4. Statistically significant correlations among TAM factors: **p <.05, *p<.10

	FB PEOU	IG PEOU	FB ATT	IG ATT	FB PU	IG PU	FB BI	IG BI
FB PEOU								
IG PEOU								
FB ATT	.61**				.63**			
IG ATT		.66**				.69**		
FB PU	.74**							
IG PU	.78**	.78**						
FB BI	.65**		.66**		.71**			
IG BI		.70**		.73**		.76**		
FB AU	.59**		.62**		.68**		.67*	
IG AU		.63**		.68**		.71**		.72**

The strength of the correlations was interpreted following the classification criteria proposed in the literature to [31]. Recent policy developments in Greece, including the government's plan to introduce age-based restrictions on social network access for users under 15 from January 1, 2027 [32], highlight growing concerns about adolescents' online behaviour. These developments further emphasise the relevance of the present findings, particularly the role of PU and PEOU in shaping students' engagement with social networking platforms.

6. CONCLUSIONS

Students naturally seek ways to communicate, a tendency that is also observable within the school environment. Research indicates that social networks can facilitate learning activities, although they are not yet fully leveraged as educational tools. Their impact on students' learning behavior is particularly noticeable in the areas of information sharing and collaboration.

7. ACKNOWLEDGMENT

The authors would like to thank all participating students for their valuable contribution to this research. Responsibility for the interpretations and conclusions presented remains solely with the authors.

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