Social Media Use, Digital Literacy, and Attentional Control of Self-Regulation as Predictors of Perceived Learning

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Article Info

Abstract

The extensive use of social media among young learners has opened up new opportunities for collaboration, information sharing, and informal learning. However, its impact on perceived learning largely depends on students' ability to regulate their attentional behaviors and effectively navigate digital environments. This study explores the influence of university students' in-school and out-of-school social media utilization behaviors on the perceived learning, after controlling for the effect of digital literacy, and the attention control dimension of self-regulation skills. To this end, data were collected from 847 undergraduate and associate degree students at a public university in Northern Türkiye. The findings of a two-step hierarchical regression analysis indicated that the attention control dimension of self-regulation and digital literacy variables emerged as significant predictors of perceived learning and after controlling for the effect of these variables it was demonstrated that out-of-school social media behaviors were found to have a negative impact on perceived learning, whilst in-school social media behaviors are positively associated with it. The study yielded recommendations for researchers and educators based on the results.

Introduction

Social media, which meets many needs of individuals thanks to the applications it provides, has become an essential part of daily life. With the COVID-19 pandemic, the time spent on social media has increased, and the use of social media has diversified (Bozkurt, 2020). According to February 2025 data, the number of internet users worldwide has reached 5.56 billion, and the number of social media users has reached 5.24 billion. Social media users mostly use social media to keep in touch with family and friends (50.8%), to spend leisure time (39%), to read the news (34.5%), to find content (e.g., articles and videos) (30.5%) (We Are Social, 2025). According to a study conducted by the Radio and Television Supreme Council, 94.8% of young people between the ages of 15-21 living in Turkey use the Internet to access their social media accounts; the activities they do with social media tools are sharing photos (80.8%), commenting on a web page (60.9%), sharing self-produced video content (53.7%) and blogging (42.2%) (Radio and Television Supreme Council, 2022). These data show that both in Turkey and around the world, social media has an intense presence in daily life.

Studies showed the growing importance of social media usage in and out of school. For example, Baz (2022) found that students use social media mainly for entertainment outside school, but in school, they use it more for education, i.e., watching subject-related videos and sharing learning resources. Tess (2013) found that social media has become integral to students' lives, serving as an informal and social learning platform. A comprehensive review study revealed that social media could increase engagement between students and teachers, recognize the beneficial effects of social media on learning, and value it accordingly (Alshalawi, 2022). Despite benefits, social media usage also poses some risks. For example, persistent involvement in social media in class can influence academic performance negatively, leading to cyberloafing behavior and posing a challenge to sustaining attentional focus (Gökçearslan et al., 2016). Studies also demonstrated that increased media usage is associated with decreased performance (Uzun et al., 2024; Uzun & Kilis, 2019). Transforming social media tools into an assistant that supports the learning process rather than a distracting element reveals the importance of digital literacy as well as the attention control dimension of self-regulation skills (Arslantas et al., 2024; Çevik et al., 2015). Investigating the relationship between the dimensions of self-regulation, digital literacy, and the use of social media both within and outside of school settings may hold significant value. Therefore, this study explored how the combination of digital literacy, attention control dimension of self-regulation, and in- and out-of-school social media usage influences perceived learning.

Literature Review

Effective and efficient use of social media might be related to students' skills, such as digital literacy and the control dimension of self-regulation. Digital literacy is "the ability to understand and use information from various digital sources" (Koçyiğit et al., 2024, p. 229), while attention control, a fundamental component of the self-regulation mechanism that enables individuals to regulate their behaviors, emotions, and cognitive processes in line with a specific goal, allows individuals to focus selectively on environmental stimuli and ignore distracting elements (Rueda et al., 2004).

According to Anthonysamy et al. (2020), digital literacy refers to more than just knowing how to use technology; it also refers to being a lifelong learner. Because university students are expected to be more self-directed, self-regulation, and digital literacy are important factors that contribute to sustainable learning. Shopova (2014) indicated that most incoming university students don't have the necessary skills to benefit from technology for academic purposes, while they are proficient in using social media and playing games. To Bozkurt (2020), online and/or digitalized learning will be important in the post-pandemic era; hence, schools must prioritize teaching these abilities to help students achieve both personally and professionally. One of the environments where digital literacy skills are reflected is social media. Digital literacy, which affects individuals' ability to use digital tools, offers a more balanced and conscious social media usage habit (Pamuk, 2024). In their study, Arslantas et al. (2024) found that digital literacy was indirectly related to cyberloafing via internet addiction, and they concluded that promoting digital literacy is crucial for academic performance because students can learn productive consumption of the Internet in this way.

Langarizadeh et al. (2018) demonstrated that higher internet addiction levels are related to lower digital literacy, suggesting that increasing digital literacy might diminish the risk of internet addiction. Ironically, in some circumstances, higher levels of digital literacy may lead to a greater reliance on social media because studies have shown that people who are more proficient with digital technologies may spend more time using them (Jeong & Bae, 2022). Similarly, Leung and Lee's (2012) study demonstrated that individuals susceptible to internet addiction also tend to be technologically proficient, engaging in social media and online leisure games. They found that higher internet literacy was positively related to internet addiction, unexpectedly. Nevertheless, due to its characteristics, it is thought that digital literacy skills have a structure that can have an impact on individuals' social media usage purposes and behaviors.

In the context of digital media usage, studies also revealed the importance of the control dimension of self-regulation. Self-regulation includes the capability to organize, monitor, and assess one's learning processes, and attention control is a key variable that allows students to focus on relevant tasks, avoiding distractions. Many students are not adept at self-regulating their academic studies, particularly in the current era, which is characterized by a proliferation of digital devices (Zimmerman, 2002). Diehl et al. (2006) and Luszczynska et al. (2004) posit that attention control constitutes a foundational aspect of self-regulation, allowing individuals to sustain concentration and achieve their objectives despite competing stimuli. In digital environments, the ability to maintain concentration becomes especially essential for students, who are required to navigate a variety of platforms, notifications, and multimedia content while successfully engaging with their academic assignments (Gökçearslan et al., 2016; Uzun & Kilis, 2019). According to a study, learner control is associated with students' readiness for online learning, which in turn affects their motivation for academic achievement (Horzum et al., 2015). Blau et al. (2020) found that learning new technologies and self-regulation is integral to digital literacy and that expanding the digital literacy framework will establish a positive relationship between students' perceived learning levels.

Students' social media involvement, both in and out of school, has a link with their perceived learning, which is also known as the beliefs and feelings individuals have about the learning process. Perceived learning is a

retrospective evaluation of the learning experience (Caspi & Blau, 2008). Self-regulation and digital literacy are two similar key determinants of learning with digital media. First, deficient self-regulation might be associated with less demanding and more pleasant media gratifications, negatively affecting academic performance (Gaudreau et al., 2014; Lau, 2017). Digital literacy might function similarly. Students who are adept at using digital media can engage in critical thinking and maintain a skeptical stance toward information. Hence, these students can function as filters to critically evaluate whether the information is accurate, reliable, and unbiased (Eshet-Alkali & Amichai-Hamburger, 2004). This might be associated with the kinds of activities in which students are involved on social media.

Problem and Research Question

Young individuals use the Internet both in and out of school and spend a lot of time with social media tools (Alshalawi, 2022; Baz, 2022), While social media offers opportunities for collaboration, information sharing, informal learning, and enhanced performance (Agbo et al., 2020; Khan et al., 2014; Lau, 2017), its impact on perceived learning is mixed and highly dependent on students' ability to regulate their behaviors and effectively navigate in digital environments (Arslantas et al., 2024; Gökçearslan et al., 2016; Horzum et al., 2015). Specifically, the control dimension of self-regulation (e.g., attention control) (Diehl et al., 2006; Demiraslan-Çevik et al., 2015) and digital literacy (e.g., the capability of evaluating digital sources critically) (Eshet-Alkali & Amichai-Hamburger, 2004; Jeong & Bae, 2022) are critical factors that may shape how students use social media in and out of school and how this usage contributes to their perceived learning. As stated before, different studies investigated students' in and out-of-school technology usage and their effect on academic performance. However, there is still a significant gap in understanding how these variables together affect perceived learning. Students' ability to regulate attention, manage social media distractions, and effectively utilize digital tools might substantially impact their perceived learning (Kirschner & Karpinski, 2010; Matzat & Vrieling, 2016; Uzun & Kilis, 2019). Therefore, investigating the effects of in-school and out-of-school social media behaviors, digital literacy abilities, and the attention management dimension of self-regulation on perceived learning levels is deemed critical. In the context of this study, considering that students with different control levels of self-regulation and digital literacies might be affected differently, it is projected that students' in and out-of-school social media usage is associated with their perceived learning after controlling for the effect of the control dimension of self-regulation and digital literacies. Hence, the following research question is formulated:

- Do university students' in-school and out-of-school social media use behaviors predict their perceived learning after controlling for the effect of digital literacy skills and the attention control dimension of self-regulation?

The findings of the present study have the potential to assist instructors in the development of educational environments that promote digital literacy and self-regulation. These environments can be designed to support the development of these skills. Furthermore, the study's results may contribute to an increased awareness of the effective use of new media and the consideration of social media courses and policies. Researchers may utilize the results of predictive relationships identified in this study to guide future studies that employ different methods and participant groups.

Method

Research Model

The survey model, one of the quantitative research types, was used in the study. Survey research, one of the quantitative research methods, aims to determine the opinions and attitudes of individuals about a particular phenomenon or event by conducting it on large groups of participants (Creswell, 2015). In the study, in-school and out-of-school social media behaviors were designated as independent variables, perceived learning was determined as the dependent variable, and digital literacy skills and attention control variables of self-regulation were determined as control variables.

Participants

In this study, a convenience sampling method was preferred among sampling methods. The convenient sampling method enables the selection of close and simple-to-reach samples in obtaining data (Creswell, 2015). The study sample consists of associate and undergraduate students at a public university in the black sea region of Türkiye. The data collection tool was applied to 858 students to reach the determined sample. In examining residual and extreme values, 11 data points outside the Leverage value range were excluded from the study, yielding a total sample size of 847. Of the participants, 65.64% were female (N=556), and 34.35% (N=291) were male. More than half of the participants were between the ages of 18-21 (N=578, 68.24%), 24.67% were between the ages of 22-25, 3.06% were between the ages of 26-30, and 4.01% were 31 years and older. 57.14% of the students are enrolled in faculties, while 42.85% are at vocational schools. Among the students, 40.49% are in their first year, 30.22% in their second year, 15.70% in their third year, and 13.57% in their fourth year of study.

Data Collection Tools

The perceived learning scale developed by Horzum et al. (2015) was used. The scale consists of five Likert-type items, ranging from disagree completely (1) to agree (5) completely. Higher points indicate more perceived learning. The in-and-out-of-school social media behaviors scale was adapted into Turkish by Dikbaş Torun (2019). The scale consists of 21 five-point Likert-type items ranging from never (1) to always (5). Items in the scale focused on various social media activities performed by students both in and out of school. Turkish version of digital literacy (Üstündağ et al., 2017) was used to determine the digital literacy levels of university students. The scale consists of ten items organized in a five-point Likert type with a single-factor structure. Finally, the Turkish version of the control dimension of the self-regulation scale (Demiraslan-Çevik et al., 2015) was utilized to measure students' attentional control levels while using social media. The scale consists of seven Likert-type items with a single-factor structure, ranging from 1 for disagree entirely and 4 for agree entirely.

Data Collection Process

After obtaining permission from the ethics committee for the research, data collection permission was obtained from the relevant institution. The study data was collected through Google Forms.

Data Analysis

A two-step hierarchical multiple linear regression analysis was used to analyze the data. In the study, two predictor variables (in and out social media usage), two control variables (digital literacy and control dimension of self-regulation), and one dependent variable (perceived learning) were considered. The procedures required for multiple regression analysis were carried out through the SPSS program. The study first assessed hierarchical multiple regression analysis assumptions and found that the assumptions were met.

Results

First of all, descriptive statistics were calculated. Results can be seen in Table 1.

Table 1. Descriptive Statistics

Variables	Mean (M)	Standard Deviation (SD)
Perceived learning	17.74	4.72
In-school social media behaviors	26.60	7.57
Out-of-school social media behaviors	46.73	14.32
Digital literacy	32.69	9.12
Attention control of self-regulation	19.36	4.98

Next, the correlation between the variables was calculated, and it is given in Table 2.

Table 2. Correlation Between Variables

Variables	1	2	3	4
PL				
ISSMB	.357**			
OSSMB	.112**	.589**		
DL	.583**	.379**	.287**	
ACS	.465**	.301**	.155**	.410**

Note: PL: Perceived learning, ISSMB: In-school social media behavior, OSSMB: Out-of-school social media behavior, DL: Digital literacy, ACS: Attentional control of self-regulation, **$p<.01$

It is seen that the relationship between the dependent variable and other variables is statistically significant. Digital literacy has the strongest relationship with perceived learning, showing a positive, significant, and strong relationship ($r=0.58$, $p<.001$). The attention control dimension of self-regulation had a positive, significant, and moderate relationship with perceived learning ($r=0.46$, $p<.001$). The relationship between perceived learning and out-of-school social media behaviors was positive, significant, and low ($r=0.11$, $p<.001$). Finally, a positive, significant, and moderate relationship was identified between perceived learning and in-school social media use ($r=0.35$, $p<.001$) (Cohen, 1988).

A two-step hierarchical multiple linear regression analysis was performed to test how in and out-of-school social media usage is associated with perceived learning after controlling for the effect of digital literacy and attentional control of self-regulation. Results are given in Table 3.

Table 3. Prediction of the Dependent Variable (Perceived Learning)

	b	SE	β	t	sr^2	R^2	ΔF
Step 1						.40	282.790
(Constant)	4.759	0.575		8.271***			
DL	.244	.015	.471	16.130***	.18		
ACS	.259	.028	.272	9.331***	.06		
Step 2						.43	24.973
(Constant)	4.811	0.630		7.632***			
DL	.235	.015	.453	15.155***	.15		
ACS	.230	.027	.242	8.381***	.05		
ISSMB	.138	.021	.222	6.556***	.03		
OSSMB	-.061	.011	-.186	-5.773***	.02		

Note: PL: Perceived learning, ISSMB: In-school social media behavior, OSSMB: Out-of-school social media behavior, DL: Digital literacy, ACS: Attentional control of self-regulation, *** $p < .001$.

In the first model, we evaluated whether control variables digital literacy and attention control of self-regulation significantly predicted perceived learning. Results demonstrated that model 1 was significant and explained 40% of the total variance for perceived learning, $R^2 = .40$, $F (2, 844) = 282.790$, $p<.001$. In this model, digital literacy (DL) and attention control of self-regulation (ACS) were significant predictors. Specifically, DL was positively and significantly associated with perceived learning (β = .471, $t = 16.130$, $p < .001$), and it explained a large amount of variance (18%) in perceived learning. Similarly, ACS was positively and significantly related to perceived learning (β = .272, $t = 9.331$, $p < .001$), and it uniquely explained 6% of the variance in perceived learning.

In the second model, ISSMB (In-school social media behavior) and OSSMB (Out-of-school social media behavior) were included to test their effect on perceived learning after controlling for the impact of DL and ACM. The model explained 43% of the total variance, increasing the explained variance by a factor of 3.4%, $\Delta R^2 = .034$, $\Delta F (2,842) = 24.973$, $p<.001$. In the final model, the two control variables were significant. Specifically, digital literacy (DL) and attention control of self-regulation (ACS) significantly contributed to the model. DL was significantly and positively associated with perceived learning (β = .235, $t = 15.155$, $p < .001$). Similarly, ACS was significantly and positively associated with perceived learning (β = .230, $t = 8.381$, $p < .001$). Considering social media usage of students in and out of school, results revealed that students' ISSMB (in-school social media usage behaviors) was positively linked with perceived learning (β = .138, $t = 6.556$, $p < .001$). Contrarily, students' OSSMB (out-of-school social media usage behaviors) was negatively and significantly associated with perceived learning.

Discussion

This study aimed to determine the predictive effect of university students' in-school and out-of-school social media use behaviors on perceived learning after controlling for the impact of digital literacy skills and the attention control dimension of self-regulation skills. We collected data from 847 associated undergraduate students and conducted a two-step hierarchical multiple regression analysis in line with this purpose. In the first model, two control variables, digital literacy and the control dimension of self-regulation, were entered into the model, while in and out-of-school social media usage behaviors were entered into the model in the second step.

Considering the control measures, results revealed that both digital literacy and attention control of self-regulation are significantly associated with students' perceived learning. This indicated that higher levels of students' digital literacy and attentional control are linked with higher levels of perceived learning, regardless of students' social media usage in and out of school. In the current study, the digital literacy variable is strongly associated with perceived learning. This finding is consistent with our expectations, given that digital literacy is the ability to understand and utilize information from digital sources effectively (Koçyiğit et al., 2024), and many of the qualities that are required for success in learning and digital literacy are shared (Pala & Başıbüyük, 2020; Pala & Başıbüyük, 2023). The finding is also consistent with the framework proposed by the Educational Testing Service (ETS), which conceptualized ICT literacy as "using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society" (ETS, 2007, p. 2). This study's findings demonstrate that students adept at finding, critiquing, and evaluating critical information within digital environments tend to exhibit superior perceived learning results, and this result is consistent with the literature. For example, in their comprehensive meta-analysis, Lei et al. (2021) revealed that those with high digital literacy tend to exhibit higher academic achievement. It was shown that digital literacy is critical, especially for online learning (Holm, 2025). In essence, developing digital literacy skills can facilitate students' utilization of digital tools to support their learning processes. As stated before, attention control of self-regulation was found to be positively and significantly associated with perceived learning, and this finding is consistent with the literature (Blau et al., 2020; Kara et al., 2021; Navarro et al., 2023).

The current study also demonstrates a positive, significant, and moderate relationship between attentional control of self-regulation and perceived learning. In other words, students' ability to manage their attention can also be influential in the learning process. Students with strong attentional control tend to be more efficient learners because attention control involves avoiding distractions, managing unpleasant emotions, and focusing on the task (Luszczynska et al., 2004). This was also corroborated by the research showing that self-regulation, including attention control, is crucial for learning achievement, especially in digital learning environments (Blau et al., 2020; Chou et al., 2024; Horzum et al., 2015; Kara et al., 2021). In contrast, research also demonstrated a non-existent relationship between the control dimension of self-regulation and academic achievement. This may be attributable to students' persistent engagement with media despite their metacognitive awareness that these media may exhibit an inverse relationship with learning. (Terry et al., 2016; Uzun & Kilis, 2019). Nevertheless, considering that the control dimension of self-regulation refers to students' ability to monitor and regulate their attention to a goal-directed behavior by filtering out irrelevant stimuli (Diehl et al., 2006; Zimmerman, 2002), the hypothesis that the

more control over attention, the higher the achievement seems more promising, and the results of the current study are well in line with this.

In the next step, we tested whether students' in and out-of-school social media usage is related to their perceived learning after controlling for the effect of digital literacy and the control dimension of self-regulation. Results revealed a positive and significant relationship between in-school social media behaviors and perceived learning. This finding is well in line with the literature. For example, Agbo (2020) demonstrated that social media usage for collaborative activities in the context of computing education augments the tie strength, leading to better learning outcomes. Khan et al. (2014) showed that peer support in social media, particularly blogs, enhanced academic collaboration when used in the educational context. Other studies also corroborated the current study's findings. For instance, Sarsar et al. (2015) reported that students generally favored Facebook and blogger usage for classroom activities. Similarly, Tugrul (2017) demonstrated that the social media-supported traditional classroom approach fostered overall learning effectiveness. Overall, these studies and the results of the current study suggest that in-school social media usage might lead to beneficial outcomes when tied to goal-directed educational behavior. In other words, as with all educational interventions, the productive and uninterrupted use of social media has the potential to enhance learning outcomes. However, when students use social media for non-academic purposes, it has the potential to hinder learning (Alt, 2017). This adverse effect is especially salient when students engage in social media multitasking, which refers to media involvement in the classroom, while at the same time attempting to engage in academic activities (Karpinski et al., 2013; Lau, 2017; Uzun & Kilis, 2019; Uzun et al., 2024).

When the association of out-of-school social media usage with perceived learning was investigated after controlling for the effect of digital literacy and the control dimension of self-regulation, the results revealed a significant and inverse negative relationship between the variables. This finding aligns with expectations, as out-of-school social media use is typically unregulated and lacks clear boundaries; and when not used productively, it can contribute, to a greater or lesser extent, to problematic media consumption. This finding is also consistent with research on the motivations behind out-of-school social media use, with numerous studies indicating that students might primarily engage with social media off-campus for non-educational purposes. A study revealed that entertainment is the main motivation for social media use among Arab students (95%), despite their awareness of the negative effects of excessive reliance on social media (Abu Backer & Awad, 2025).

Similarly, in a US student population, a positive and moderate relationship was found between compulsive social media use and using social media for social connectedness and recognition, while a weaker positive relationship exists between compulsive social media use and using social media for information seeking and entertainment (Karayigit et al., 2021). Finally, a study conducted with Turkish participants revealed that students used social media mostly for entertainment purposes (Baz, 2022). From these results, one can argue that if social media is used excessively and compulsively outside the class, it might replace the time that, in fact, should be devoted to studying, which might be correlated with achievement negatively (Alshalawi, 2022; Kirschner & Karpinski, 2010; Lau, 2017; Uzun & Kilis, 2019).

Recommendations

Based on the findings of the study, it can be concluded that within the school environment, educators and students should make careful and goal-oriented use of social media to positively impact perceived learning. Outside of the school environment, students should be mindful of their social media use to prevent problematic behavior. Responsible and productive usage can be ensured through fostering digital literacy and self-regulation skills. In this sense, university administrators can place greater emphasis on specialized courses that focus on digital or media literacy, particularly in the area of social media literacy (Heiss et al., 2023). In these courses, strategies to improve self-regulation can be addressed, considering the fact that digital literacy is strongly related to self-regulation and functionalizes it (Chen, 2025). Recent studies have shown that school-based social media programs are effective in promoting healthy usage of social media, which includes raising awareness as well as interactive activities that lead to behavioral change (Andersen et al., 2024). Digital self-control tools that enhance students' awareness of how to combat digital distractions can also be used (Biedermann et al., 2024). Finally, the utilization of learning management systems that incorporate features and user experiences similar to those observed in social media platforms might be a potential solution.

This study has some limitations. First of all, although the sample size is considerably large (N=847), the study used convenience sampling, selecting participants from one particular university located in the Black Sea Region of Türkiye, which might decrease the external validity of the study. Therefore, caution should be taken, as the results may not apply to all university populations, private or public universities, or different age groups. Future research might be replicated with a diverse, broad, and more representative population. Secondly, the study utilized a survey design; the relationships might not indicate causality. There may be a need for more innovative methods to uncover how students' usage profiles are related to their behaviors. For example, Sánchez-Fernández et al. (2024) utilized network analysis to reveal the complex relationships between various problematic behaviors and psychological constructs. Another limitation is that the data is based on self-reported information, which is prone to social desirability bias. Students may exaggerate their academic use of social media while underreporting how much it distracts them. Furthermore, achievement data is based on a perceived learning scale, which might not reflect students' real performance. Future studies may focus on specific programs and methodologies that can more effectively examine the influence of self-regulation, digital literacy, and social media use, both inside and outside of school, on learning (Andersen et al., 2024). Finally, in this study, social media usage was considered generally. Future studies might discriminate the distinct effects of specific social media (e.g., Instagram, Twitter) on learning. Finally, the current study considered the influence of social media solely regarding cognitive output (perceived learning). Future research could examine the effects of social media usage on behavioral and emotional outcomes.

Conclusion

The current study aimed to explore whether students' in-school and out-of-school social media use behaviors predict their perceived learning after controlling for the effect of digital literacy skills and the attention control dimension of self-regulation. The study found that digital literacy and attention control dimension of self-

regulation are important determinants of perceived learning, and after controlling for the effects of these variables, in-school social media usage has a positive relationship with perceived learning, while out-of-school social media usage is negatively associated with it. Based on the results, we conclude that although social media can be used by students in a productive way, overuse outside of school may endanger students. In school, social media usage might provide a structured and more formal way of usage, while outside the school, social media usage might not be productive. In both contexts, having knowledge and skills about using social media and understanding how much to use it can affect students' perceived learning.

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