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Article

Rethinking Self-Efficacy in the Digital Age: When Confidence Meets the Overload of Social Messages

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Abstract: In the digital era, the constant influx of social messages has amplified both the frequency and complexity of interpersonal communication. This study explores the interplay among self-efficacy, academic pressure, and academic procrastination, with a particular focus on the effects of social message overload. Drawing on the frameworks of internet behavior dependence and structural equation modeling (SEM), the study collected 476 responses, of which 456 were valid for analysis. The empirical findings indicate three major outcomes: (1) self-efficacy is positively associated with academic pressure in the context of social message overload; (2) academic pressure is a significant predictor of academic procrastination; and (3) self-efficacy does not exert a direct effect on academic procrastination.

Keywords: Social messages, Self-efficacy, Academic pressure, Academic procrastination, Communication overload

1. Introduction

With the proliferation of smartphones and constant internet access, college students are increasingly immersed in a digital environment saturated with social messages—ranging from instant notifications and direct messages to public posts, academic updates, and social comparisons. These messages, while facilitating communication, resource sharing, and emotional support (Chi & Yeh, 2017), also contribute to an ever-present stream of social input that competes for students' attention and cognitive resources. As digital interactions become more frequent and fragmented, research has begun to highlight the adverse effects of social message overload, including distraction, reduced academic focus, and impaired learning efficiency (Huang, 2024; INSIDE, 2025).

Social messages, delivered through various communication features such as instant messaging, media sharing, and real-time updates, foster continuous engagement and social responsiveness. However, this persistent connectivity can give rise to a form of internet behavior dependence, where individuals develop compulsive engagement patterns that disrupt daily functioning. Drawing from behavioral addiction theories, internet behavior dependence is marked by diminished self-regulation, preoccupation with digital interactions, withdrawal symptoms, and functional impairments (Kuss & Griffiths, 2011).

The stress-coping theory of addictive behavior (Wills et al., 2001; Lightsey & Hulsey, 2002) provides a relevant framework for understanding these dynamics. According to this theory, individuals experiencing high stress levels and lacking effective coping mechanisms are more prone to maladaptive behaviors—including compulsive engagement with digital communications. Emotion-focused or avoidant coping strategies may lead students to seek relief in the passive consumption of social messages, reinforcing dependence and further delaying academic tasks. Self-efficacy, defined as the belief in one's ability to successfully execute specific tasks, is a pivotal factor in academic adjustment. Under normal circumstances, high self-efficacy is associated with greater academic motivation and persistence. However, in the context of overwhelming social messaging and digital distractions, elevated self-efficacy may inadvertently increase academic pressure, as students place greater expectations on themselves. In environments where social comparisons are frequent, this pressure may indirectly contribute to procrastination, not due to a lack of ability, but as a psychological response to stress and over commitment.

This study aims to examine the complex relationships among self-efficacy, academic pressure, and academic procrastination within the context of social message overload. Grounded in the frameworks of internet behavior dependence and stress-coping theory, the research seeks to clarify how students' psychological traits and digital interaction patterns jointly shape their academic engagement and overall well-being.

2. Literature Review

From a psychological perspective, the constant stream of social messages can lead individuals to present idealized versions of themselves, resulting in emotional detachment, cognitive dissonance, and heightened risk of depression (TECH2IPO, 2025). Excessive engagement with these messages has been shown to negatively affect academic performance, relationships, work, and overall well-being (Egger and Rauterberg, 1996; Young, 1998). This study, grounded in the concept of internet behavior dependence, investigates the relationships among self-efficacy, academic pressure, and academic procrastination in the context of social message overload. Emotionally charged and algorithm-driven, social messages actively shape users' emotions, attention, and behaviors—highlighting the importance of understanding their psychological impact for developing effective educational and mental health interventions.

2.1. The Impact of Social Messages on Mental Health

Overexposure to social messages can contribute to reduced face-to-face interaction, emotional fatigue, and a reliance on digital validation for self-worth. Adolescents and young adults, in particular, may substitute real-life relationships with curated online exchanges (Liao, 2001; Liu, 2001), reinforcing patterns of Internet Behavior Dependence. This dependency is characterized by the compulsive need to check and respond to messages, time distortion, emotional withdrawal, and difficulty disengaging from online interactions (Young, 1998). While brief relief from loneliness may occur—especially among individuals with attachment anxiety (Blackwell et al., 2017)—prolonged message-based engagement often leads to heightened anxiety, disrupted sleep, and diminished real-life coping skills.

Users caught in continuous feedback loops often experience stress from perceived obligations to stay socially available. In both personal and professional settings, the pressure to respond promptly and maintain visibility online can result in "social message stress," where digital interactions feel mandatory rather than voluntary (Deursen et al., 2015; Weng, 2025). From a psychological standpoint, the reinforcing nature of social messages, particularly within the framework of Internet Behavior Dependence, poses significant risks to mental and emotional well-being. As individuals lose self-regulatory control and use digital messaging to cope with emotional needs, the line between healthy interaction and avoidance-driven behavior becomes increasingly blurred. Ultimately, heavy reliance on social messages for emotional regulation and social connection may undermine psychological resilience, erode offline support systems, and negatively affect academic performance, motivation, and daily functioning.

2.2. Self-Efficacy

Self-efficacy, a concept introduced by Bandura (Bandura, 1997), refers to an individual's belief in their capability to perform specific tasks or handle challenging situations. This belief system significantly influences how people think, feel, and act. In academic contexts, students with high self-efficacy are more likely to set challenging goals, persevere through difficulties, and recover from setbacks. They tend to attribute failure to insufficient effort rather than inherent inability, which fosters resilience. Conversely, students with low self-efficacy often doubt their abilities, avoid demanding tasks, and experience elevated levels of stress, anxiety, and procrastination. They may interpret academic challenges as personal threats, leading to disengagement. Prior research demonstrates that self-efficacy is a strong predictor of academic motivation, performance, and emotional well-being (Bandura and Cervone, 1986; Ludwig & Pittman, 1999).

2.3. Academic Pressure

Academic pressure has long been a key topic in educational psychology, particularly due to its impact on students' mental health and well-being. Lazarus and Folkman's (2000) cognitive appraisal theory views stress as a subjective response to perceived external demands, such as coursework, exams, and time constraints (Kaplan & Sadock, 2003). Family expectations also contribute significantly to academic stress, as students often receive implicit or explicit messages emphasizing the importance of academic achievement (Eccles, 2007). Ryan and Deci's (2000) self-determination theory highlights how such external pressures can diminish intrinsic motivation, reduce engagement, and impair academic performance.

In recent years, social messages—defined as verbal and nonverbal cues conveying societal or interpersonal expectations—have become a prominent factor shaping students' academic experiences. These messages can originate from peers, teachers, or family and often reinforce unspoken norms related to performance, competition, and success. For instance, Juvonen and Graham (2014) found that peer-related messages can impact emotional regulation and learning outcomes. Similarly, Chen (2018) emphasized that students with high self-expectations may internalize socially constructed ideals of achievement, leading to heightened stress when their performance falls short. Yet, social messages can also be supportive: When they emphasize cooperation, encouragement, or shared academic goals, they foster emotional well-being and enhance self-efficacy. This study, therefore, examines academic

pressure through four key dimensions: personal attributes, family influence, peer and school environments, and the impact of performance-related social messages across both physical and digital contexts.

2.4. Academic Procrastination

Academic procrastination has been widely studied in educational psychology, emerging from investigations into students' learning behaviors. Steel (2007) proposed the motivation theory of procrastination, attributing procrastinatory behavior to low self-control and emotional sensitivity. Solomon and Rothblum (1984) further defined academic procrastination as the irrational delay of academic tasks, with emotional stress and low self-efficacy identified as major contributors. Self-efficacy, or the belief in one's ability to complete tasks, plays a crucial role in determining whether students' approach or avoid academic challenges. Students with low self-efficacy are more likely to interpret academic demands as threatening, leading to avoidance behaviors such as procrastination. Additionally, family expectations and achievement-oriented social messages can compound these effects by fostering internal pressure or fear of failure (Ferrari et al., 2009). As Schouwenburg (2013) and Kim and Seo (2015) have noted, external environments—particularly those filled with evaluative or comparison-based feedback—reinforce the psychological mechanisms behind procrastination.

Academic procrastination can be influenced by several factors, including low self-efficacy, lack of motivation, disinterest in academic content, poor time management, and overwhelming academic pressure. These factors are often reinforced by social messages, such as effective social interaction or invalid socialization. Students with higher self-efficacy tend to interpret these messages as challenges to overcome, while those with lower self-efficacy may perceive them as confirmation of their inadequacy. This study adopts a unidimensional scale to assess academic procrastination, using seven behavioral indicators, including postponing exam preparation, delaying assignments, and becoming distracted by non-academic tasks. By analyzing these patterns alongside students' self-efficacy levels and their exposure to academic pressure-related social messages in the digital age, this research aims to explore how academic procrastination is shaped by the interplay between self-efficacy and academic pressure.

3. Methodology

Children of the overexposed generation face three significant challenges in today's digital society: digital nativity, boundary disorder, and loss of psychological buffer. Digital nativity refers to children being born into and raised within a fully digital environment, where online interactions and digital platforms are embedded into daily life (Prensky, 2005). *Boundary disorder* reflects the blurring of lines between physical and virtual spaces, in which school-related issues extend beyond school hours, often following students home via online messaging and learning platforms (Livingstone and Sefton-Green, 2016). This makes it difficult for students to disengage and mentally recover. Loss of psychological buffer arises from constant exposure to emotionally charged content and social feedback online, leading to emotional volatility and reduced capacity for self-regulation (Chen, 2024). As a result, adolescents increasingly struggle to cope with persistent academic and social demands in digital environments.

3.1. Research Framework

In this context, social networking platforms have become deeply intertwined with adolescents' everyday routines, offering mechanisms for affirmation, connection, and emotional expression. Platforms like Facebook, Threads, and Instagram provide opportunities for peer support through likes, comments, and shares, which can elevate self-esteem and strengthen self-efficacy—the belief in one's ability to accomplish academic goals (Bandura, 1997; Burke and Kraut, 2016). However, under conditions of social message overload, this dynamic becomes more complex. Research shows that self-efficacy is positively correlated with academic pressure, as students with strong self-beliefs often set ambitious goals and interpret peer comparisons as motivational challenges (Klassen et al., 2010). While this reflects a proactive mindset, it can also intensify perceived academic expectations, contributing to greater stress and workload pressure. Based on this literature review, the present study explores the interrelated effects of self-efficacy, academic pressure, and academic procrastination, particularly in the digital age where social messages are frequent, fast-paced, and emotionally loaded. The research framework is presented in Fig. 1. Guided by this model, the study proposes the following hypotheses:

H1: Self-efficacy has a significant impact on academic pressure.

H2: Academic pressure has a significant impact on academic procrastination.

H3: Self-efficacy has a significant impact on academic procrastination.

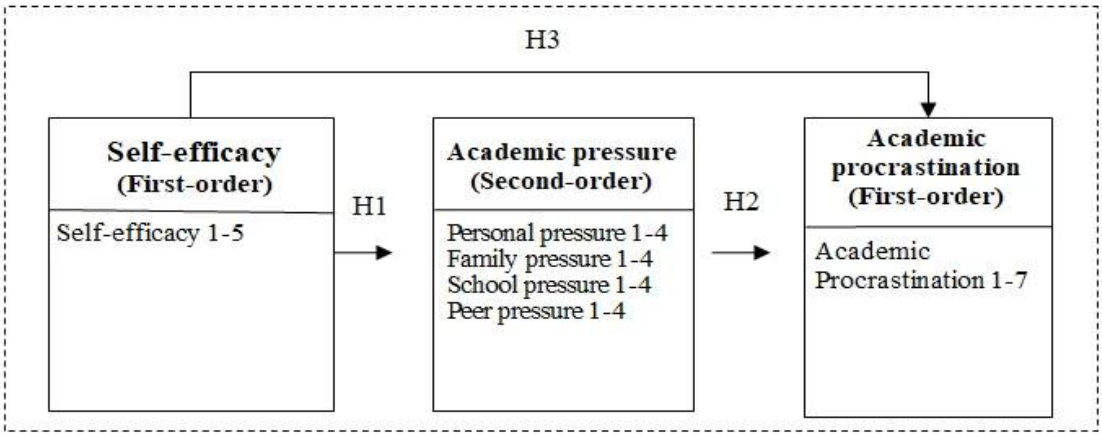

Fig. 1. Research framework.

3.2. Questionnaire Design and Data Collection

The questionnaire used in this study covered the following aspects: (1) basic demographic information (e.g., gender, academic year, time spent on social platforms, frequency of viewing social platforms, and most frequently used social platforms); (2) self-efficacy; (3) academic pressure; and (4) academic procrastination. The questionnaire consisted of 46 items measured using a five-point Likert scale. This study employed purposive sampling based on the proportion of students in each academic year. A total of 500 questionnaires were distributed, and 476 responses were collected, resulting in a response rate of 95.2%. After data screening, 456 valid responses were retained, yielding an effective response rate of 91.2%.

4. Discussion Data Analysis and Findings

4.1. Descriptive Statistical Analysis

The final sample consisted of 456 valid responses. For a detailed summary, please refer to Table 1.

Table 1. Sample distribution.

	Item	Number	Percentage (%)
Gender	Male	201	44.1
	Female	255	55.9
	Total	456	100
Academic year	Freshman	150	32.9
	Sophomore	122	26.8
	Junior	119	26.1
	Senior	43	9.4
	Others	22	4.8
	Total	456	100
Time spent on social platforms	< 3 hours	90	19.7
	3–5 hours	193	42.3
	> 5 hours	173	37.9
	Total	456	100
Frequency of viewing social platforms	Frequent	192	42.1
	Moderate	204	44.7
	Occasional	60	13.2
	Total	456	100

Based on the data from Table 2, students diversify their social network engagement, they tend to gravitate toward platforms with stronger peer presence and real-time communication features.

Table 2. Most frequently used social platforms (multiple choice / 456 samples).

Social Platform	LINE	Facebook	Instagram	WeChat	Telegram	X	Dcard
Use Ratio	87.9%	59.6%	88.6%	19.7%	8.6%	14.9%	25.2%
Social Platform	Discord	Twitch	Messenger	Threads	Omi	TanTan	Others
Use Ratio	25.7%	16.4%	30.0%	12.1%	4.4%	6.4%	1.3%

4.2. Structural Equation Model Analysis

Following the recommendations of Hair et al. (1998), this study evaluates the model fit by categorizing fit indices into three groups: absolute fit measures, incremental fit measures, and parsimonious fit measures. For the absolute fit measures, the overall theoretical model demonstrated the following indices: $\chi^2 = 416.4$, GFI = 0.897, AGFI = 0.862, RMR = 0.038, RMSEA = 0.083. The chi-square value was statistically significant, and all other indices met acceptable standards. For the incremental fit measures, NFI = 0.905 and CFI = 0.926, both exceeding 0.9, indicating an acceptable fit. For the parsimonious fit measures, PNFI = 0.761 and PGFI = 0.666, both exceeding 0.5, which are within acceptable thresholds. Overall, the results confirm that the structural model exhibits a good fit. Please refer to Fig. 2.

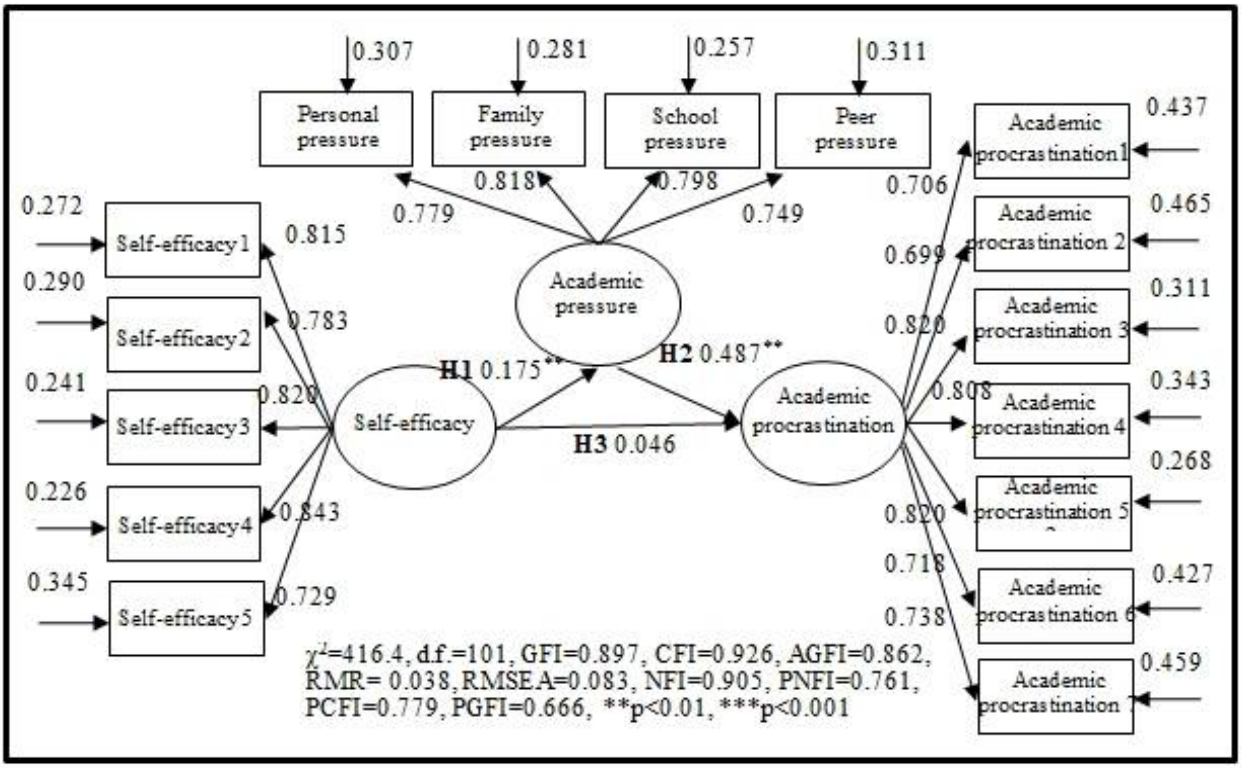

Fig. 2. Path coefficients analysis.

This study adopts SEM and Bootstrapping to examine the mediation effect. These approaches offer the advantage of accurately estimating indirect effects without assuming a specific sampling distribution and without being affected by the complexity of the structural paths linking the independent and dependent variables. SEM and Bootstrapping are widely recognized as highly efficient methods for testing mediation and can effectively reduce the risk of Type I errors (Preacher and Hayes, 2008; Hayes, 2009).

The results reveal that academic pressure serves as a significant mediator in the relationship between self-efficacy and academic procrastination. Moreover, the confidence interval of the direct effect includes zero (−0.052 to 0.159), indicating that the mediation is full rather than partial. The total effect is β = 0.131. Please refer to Table 3.

Table 3. Summary of mediation effects.

Path	Estimate	95% Confidence Interval	
		BC p value	BC
Indirect effect			
Self-efficacy → Academic pressure → Academic procrastination	0.085	0.020	0.014~0.164
Direct effect			
Self-efficacy → Academic procrastination	0.046	0.374	−0.052~0.159
Total effect			
Self-efficacy → Academic procrastination	0.131	0.046	0.002~0.261

BC: Bias-corrected percentile method.

The results further demonstrate that academic pressure serves as a full mediator between self-efficacy and procrastination, indicating that students' confidence does not exert a direct influence on procrastinatory behavior once digital stressors are taken into account. This pattern is consistent with recent findings suggesting that environmental stress, message overload, and pervasive digital interruptions diminish the traditionally protective role of self-efficacy in self-regulatory processes (Bandura, 1997; Steel & Klingsieck, 2016). Under conditions of sustained message overload, students' perceived capability does not readily translate into effective action because the pressure induced by constant digital disruptions counteracts the usual negative association between self-efficacy and procrastination, thereby aligning with motivational control theory, which posits that behavioral delay emerges when task-related motivation is undermined by competing stimuli (Kuhl, 2000).

Furthermore, stress-coping frameworks indicate that when individuals face high-frequency digital demands, cognitive resources are redirected toward managing interruptions rather than task engagement, leading to weakened volitional control even among highly efficacious learners (Lazarus and Folkman, 2000; Sirois and Pychyl, 2013). Taken together, the absence of a direct effect from self-efficacy to procrastination suggests that digital-era academic environments may weaken the traditional motivational pathway, thereby positioning academic pressure as a key mechanism through which confidence influences behavioral delay.

5. Conclusions and Suggestions

The mental health of Generation Z has been deteriorating at an alarming rate, largely due to the widespread use of mobile communication devices and social media. According to multiple studies (Twenge and Campbell, 2018; Keles et al., 2020), the high prevalence of smartphones and social media among adolescents has fostered a toxic culture of social comparison and internet addiction, further exacerbating the risk of mental health issues. This study investigates the complex relationships among three key variables—self-efficacy, academic pressure, and academic procrastination—under the influence of social message overload.

In contemporary digital learning environments, social media platforms intensify the tendency toward upward comparison, particularly when students encounter peers' academic achievements or idealized self-presentations online (Festinger, 1954; Vogel et al., 2014; Appel et al., 2016). For individuals with higher self-efficacy, such content often functions as a salient performance benchmark, prompting more frequent comparison processes and elevating self-imposed academic expectations. While self-efficacy typically encourages the pursuit of challenging academic goals (Bandura, 1997), these heightened expectations can become particularly demanding in contexts saturated with constant academic or performance-related cues.

At the same time, the cognitive demands associated with sustaining self-efficacy-driven goals are increasingly disrupted by the pervasive presence of digital interruptions. Empirical research demonstrates that continuous notifications and fragmented attention deplete self-regulatory resources and heighten perceived task difficulty (Mark et al., 2008; Rosen et al., 2014). When elevated expectations intersect with the attentional erosion caused by message overload, students may enter an expectation–stress cycle in which unmet performance standards progressively intensify stress responses (Lazarus and Folkman, 2000; Salmela-Aro and Upadyaya, 2014). Consequently, students who exhibit stronger self-efficacy may paradoxically experience greater academic pressure, as the combination of upward social comparison cues and diminished cognitive capacity under digital overload transforms confidence-driven motivation into a source of psychological strain.

The study revealed three important findings. First, in the context of social message overload, self-efficacy is positively associated with academic pressure. While students with high self-efficacy are typically seen as more capable of managing tasks and challenges, they may paradoxically feel greater academic pressure when bombarded with excessive online messages. This may be attributed to their higher personal expectations, which become harder to meet when attention is fragmented by constant notifications and social demands.

Second, academic pressure significantly predicts academic procrastination. This finding aligns with existing research suggesting that when students experience high levels of pressure, they are more likely to procrastinate as a form of avoidance coping.

The stress resulting from academic demands—especially when amplified by digital distractions—can lead to delays in task completion.

Third, self-efficacy does not have a direct effect on academic procrastination. In other words, even if a student believes in their ability to perform well, that confidence alone is not sufficient to prevent procrastination—particularly when they are overwhelmed by digital information and stress. The indirect path from self-efficacy to procrastination—mediated by academic pressure—suggests that message overload may distort or diminish the positive impact of self-efficacy.

The results of this study highlight the crucial role of digital environments in shaping academic behaviors. Social message overload is more than just a distraction—it is a psychological burden that affects how students experience pressure and manage academic tasks. Therefore, educational interventions and psychological support should incorporate strategies to help students develop mindful and intentional social media habits, thereby reducing unnecessary pressure and promoting healthier academic outcomes. Below are the actionable strategies designed (Tafesse et al., 2024; Fan and Hui, 2025; Özmen et al., 2025; OECD, 2025) for educators and institutions:

(1) Digital Hygiene Training
Teaching students notification management, social media scheduling, and digital boundary-setting to reduce overload.
(2) Academic Pressure Reduction Programs
Including goal-setting workshops, academic counseling, and evidence-based stress management techniques.
(3) Procrastination Interventions
Applying behavioral activation, structured planning tools, and institutional support systems.
(4) Curriculum-Level Strategies
Integrating digital literacy modules that explain how message overload impacts cognition and academic performance.

Educators can implement time-blocking systems within learning management platforms, encouraging students to batch-process academic messages and minimize fragmented cognitive switching. Institutions may also design psychoeducational workshops to help students identify stress-inducing social message patterns and develop healthier coping strategies.

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References

1. Appel, H., Gerlach, A.L., & Crusius, J. (2016). The interplay between social comparison tendencies, social comparison orientation, and emotional responses to social comparisons on social networking sites. *Current Opinion in Psychology*, *9*, 44–49.
2. Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*; New York, NY, USA: W. H. Freeman.
3. Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. *Organizational Behavior and Human Decision Processes*, *38*(1), 92–113.
4. Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences*, *116*, 69–72.
5. Burke, M., & Kraut, R.E. (2016). The relationship between Facebook use and well-being depends on communication type and tie strength. *Journal of Computer-Mediated Communication*, *21*(4), 265–281.
6. Chen, P.H. (2024). *The Overexposed Generation: Why Teenagers Are Less Happy, Feel Less Secure, and Have Lower Self-Esteem*; Seattle, WA, USA: Parenting Press.
7. Chen, Y.H. (2018). The impact of academic pressure and school interpersonal relationships on learning self-efficacy among private high school students. Master's Thesis, Southern Taiwan University of Science and Technology, Tainan, Taiwan.
8. Chi, H.-S., & Yeh, N.-C. (2017). Health-related fitness learning and knowledge construction in a social networking context: A study on Facebook social media intervention. *Journal of Contemporary Communication and Information Society*, *32*, 151–194.
9. Deursen, A.J.A.M., Bolle, C.L., Hegner, S.M., & Kommers, P.A.M. (2015). Modeling habitual and addictive smartphone behavior: The role of smartphone usage types and user personality. *Computers in Human Behavior*, *45*, 411–420.
10. Eccles, J.S. (2007). Families, schools, and developing achievement-related motivations and engagement. In *Handbook of Socialization: Theory and Research*; New York, NY, USA: Guilford Press, pp. 665–691.

11. Egger, O., & Rauterberg, G.W.M. (1996). *Internet Behaviour and Addiction*; Zurich, Switzerland: Swiss Federal Institute of Technology.
12. Fan, X., & Hui, C. (2025). Academic stress and burnout reduction through mandala and mindfulness-based interventions in adolescents. *Behavioral Sciences*, *15*(4), 439.
13. Ferrari, J.R., O'Callaghan, J., & Newbegin, I. (2009). Prevalence of procrastination in the United States, United Kingdom, and Australia: Arousal and avoidance delays among adults. *North American Journal of Psychology*, *11*(1), 121–133.
14. Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*(2), 117–140.
15. Hair, J., Anderson, R., Tatham, R., & Black, W. (1998). *Multivariate Data Analysis*; Upper Saddle River, NJ, USA: Prentice Hall.
16. Hayes, A.F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*(4), 408–420.
17. Huang, S.Y. (2024). Exploring the influence of internet literacy on game addiction behaviors from a perspective of physical and mental health. *Journal of Electrical Systems*, *20*(6), 5524–5536.
18. INSIDE. (2025). Preventing harm to adolescent mental health! TikTok to adjust its content recommendation algorithm. Available online: https://www.inside.com.tw/article/26044-tiktok-to-adjust-its-algorithm-to-avoid-negative-reinforcement (accessed on July 10, 2025).
19. Juvonen, J., & Graham, S. (2014). Peer harassment in school: The plight of the vulnerable and victimized. *Annual Review of Psychology*, *65*, 159–185.
20. Kaplan, H.I., & Sadock, B.J. (2003). *Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry*; Philadelphia, PA, USA: Lippincott Williams & Wilkins.
21. Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal of Adolescence and Youth*, *25*(1), 79–93.
22. Kim, K.R., & Seo, E.H. (2015). The relationship between procrastination and academic performance: A meta-analysis. *Personality and Individual Differences*, *82*, 26–33.
23. Klassen, R.M., Krawchuk, L.L., & Rajani, S. (2010). Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination. *Contemporary Educational Psychology*, *34*(4), 272–281.
24. Kuhl, J. (2000). A functional–design approach to motivation and self-regulation: The dynamics of personality systems interactions. In *Handbook of Self-Regulation*; Boekaerts, M., Pintrich, P.R., & Zeidner, M., Eds.; San Diego, CA, USA: Academic Press, pp. 111–169.
25. Kuss, D.J., & Griffiths, M.D. (2011). Online social networking and addiction—A review of the psychological literature. *International Journal of Environmental Research and Public Health*, *8*(9), 3528–3552.
26. Lazarus, R.S., & Folkman, S. (2000). *Stress, Appraisal, and Coping*; New York, NY, USA: Springer Publishing Company.
27. Liao, Y.J. (2001). A preliminary study on virtual community cohesion. *Journal of Contemporary Communication and Information Society*, *1*, 57–83.
28. Lightsey, O.L., & Hulsey, C.D. (2002). Impulsivity, coping, stress, and problem gambling among university students. *Journal of Counseling Psychology*, *49*(2), 202–211.
29. Liu, C.-Y. (2001). Exploring the phenomenon of online dating through the perspectives of interpersonal relationship theory and the theory of planned behavior. Master's Thesis, National Sun Yat-sen University, Kaohsiung, Taiwan.
30. Livingstone, S., & Sefton-Green, J. (2016). *The Class: Living and Learning in the Digital Age*; New York, NY, USA: New York University Press.
31. Ludwig, K.B., & Pittman, J.F. (1999). Adolescent prosocial values and self-efficacy in relation to delinquency, risky sexual behavior, and drug use. *Youth & Society*, *30*(4), 461–482.
32. Mark, G., Gudith, D., & Klocke, U. (2008). The cost of interrupted work: More speed and stress. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2008), Florence, Italy, April 5–10, 2008.
33. OECD. (2025). *The Impact of Digital Technologies on Students' Learning*; Paris, France: OECD Publishing.
34. Özmen, S., Yalçın, İ., & Arslan, G. (2025). Feasibility of a guided web-based procrastination intervention for college students ("GetStarted"). *Internet Interventions*, *33*, 100875.
35. Preacher, K.J., & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891.
36. Prensky, M. (2005). Listen to the natives. *Educational Leadership*, *63*(4), 8–13.
37. Rosen, L.D., Lim, A.F., Carrier, L.M., & Cheever, N.A. (2014). An empirical examination of the educational impact of text message interruptions during college lectures. *Educational Psychology*, *34*(5), 627–637.
38. Ryan, R.M., & Deci, E.L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54–67.
39. Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands–resources model. *Developmental Psychology*, *50*(3), 601–613.

40. Schouwenburg, H.C. (2013). Academic procrastination: Theoretical notions, measurement, and research. In *Counseling the Procrastinator in Academic Settings*; Schouwenburg, H.C., Lay, C., Pychyl, T.A., & Ferrari, J.R., Eds.; Washington, DC, USA: American Psychological Association, pp. 111–169.
41. Sirois, F.M., & Pychyl, T.A. (2013). Procrastination and the priority of short-term mood regulation: Consequences for future self. *Social and Personality Psychology Compass*, *7*(2), 115–127.
42. Solomon, L.J., & Rothblum, E.D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology*, *31*(4), 503–509.
43. Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, *133*(1), 65–94.
44. Steel, P., & Klingsieck, K.B. (2016). Procrastination and the self: Self-regulation, self-efficacy, and self-determination. In *Encyclopedia of Personality and Individual Differences*; Cham, Switzerland: Springer, pp. 1–9.
45. Tafesse, W., Aguilar, M.P., Sayed, S., & Tariq, U. (2024). Digital Overload, Coping Mechanisms, and Student Engagement: An Empirical Investigation Based on the S-O-R Framework. *SAGE Open*, *14*(1). https://doi.org/10.1177/21582440241236087
46. TECH2IPO. (2025). You are not truly happy: Why using social networking sites can trigger mental health issues. Available online: https://www.inside.com.tw/article/5676-facebooks-mental-health-problem (accessed on July 10, 2025).
47. Twenge, J.M., & Campbell, W.K. (2018). Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. *Preventive Medicine Reports*, *12*, 271–283.
48. Vogel, E.A., Rose, J.P., Roberts, L.R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, *3*(4), 206–222.
49. Weng, S.H. (2025, July 2). In the era of social media, remember to "knock on the door"—Don't become a bomber. Available online: https://www.thenewslens.com/article/60770 (accessed on July 10, 2025).
50. Wills, T.A., Sandy, J.M., Yaeger, A.M., Cleary, S.D., & Shinar, O. (2001). Coping dimensions, life stress, and adolescent substance use: A latent growth analysis. *Journal of Abnormal Psychology*, *110*(2), 309–323. https://doi.org/10.1037/0021-843X.110.2.309
51. Young, K.S. (1998). Internet addiction: The emergence of a new clinical disorder. *CyberPsychology & Behavior*, *1*(3), 237–244.