

Psychological determinants of procrastination in the formation of students' independent learning activity

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Abstract.

Purpose: This study aims to examine the psychological determinants of procrastination in the process of developing students' independent learning activities. It focuses on how procrastination, as a conscious delay in task completion, is linked to academic motivation, self-regulation, and time management.

Research Methodology: A qualitative-descriptive approach was employed, drawing on a review of contemporary psychological and educational literature. The analysis integrates cognitive, emotional, and social perspectives to understand the underlying causes of procrastination and its implications for independent learning.

Results: The findings reveal that procrastination is strongly associated with deficits in time management skills, low intrinsic motivation, and poor emotional regulation. Social influences, such as peer pressure and learning environment, also play a significant role. These factors collectively hinder the effectiveness of independent learning by reducing persistence, focus, and academic achievement.

Conclusions: Procrastination acts as a barrier to effective self-directed learning. Addressing cognitive distortions, fostering emotional resilience, and enhancing self-regulation are essential to reducing procrastination levels and improving independent learning outcomes.

Limitations: The study is limited by its reliance on literature-based analysis rather than empirical testing. Future research should employ longitudinal and experimental designs to measure causal relationships between procrastination and learning effectiveness.

Contribution: This article contributes to educational psychology by highlighting the interplay between psychological factors and learning behavior, offering practical recommendations to support students' self-directed learning.

Keywords: *Academic Motivation, Independent Learning, Procrastination, Self-Regulation, Time Management*

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1. Introduction

In the contemporary higher education context, the ability of students to engage in independent learning is increasingly recognized as a core competence for academic success and lifelong learning. Independent learning involves the active, self-directed pursuit of knowledge, where learners take responsibility for setting goals, managing resources, monitoring progress, and reflecting on outcomes. However, the formation of such self-regulated learning behavior is often hindered by procrastination a widespread phenomenon characterized by the voluntary, irrational postponement of tasks despite anticipating negative consequences (Steel, 2007). Procrastination has been extensively studied in the

field of psychology as a multifaceted construct influenced by cognitive, emotional, and behavioral factors. Empirical evidence suggests that procrastination is not merely a time-management problem, but rather a complex self-regulatory failure associated with low self-efficacy, heightened task aversiveness, perfectionism, fear of failure, and dysregulated emotional states (F. Sirois & Pychyl, 2013; Turdiev, 2024). In the academic setting, chronic procrastination has been linked to decreased academic performance, elevated stress levels, reduced learning satisfaction, and diminished self-confidence (Duru & Balkis, 2017; Turdiev, 2024).

The relationship between procrastination and independent learning is of particular interest, as both processes involve overlapping psychological determinants such as intrinsic motivation, goal orientation, metacognitive awareness, and emotional resilience (Rozental, Forsström, Hussoon, & Klingsieck, 2022; Salguero-Pazos & Reyes-de-Cózar, 2023). While independent learning requires sustained attention, self-discipline, and consistent effort, procrastination undermines these capacities by diverting focus toward short-term mood regulation and avoidance behaviors. As such, understanding the psychological determinants of procrastination is crucial for designing targeted interventions that can foster effective independent learning habits among students (Rahayu, Candra, & Sujadi, 2024; Tao, Hanif, & Lieqin, 2025). This article aims to explore the psychological determinants of procrastination that impede the development of independent learning activities in university students. Specifically, it examines the cognitive (e.g., decision-making biases, task perception), emotional (e.g., anxiety, low emotional regulation), and social (e.g., peer influence, academic environment) factors that contribute to procrastinatory behavior. Furthermore, the paper discusses evidence-based strategies for reducing procrastination, thereby enhancing students' capacity for autonomous, self-regulated academic engagement (Nieto, Faure-Carvallo, Calderon, & Gustems, 2024; Ye, Chi, Ma, & Pan, 2025).

Independent learning has emerged as a central pillar of modern pedagogy in higher education, particularly in response to rapid global transformations in knowledge, technology, and labor markets. The increasing emphasis on lifelong learning requires students to become not merely passive recipients of knowledge but active constructors of their own educational pathways. In this sense, universities are tasked not only with transmitting disciplinary expertise but also with equipping students with the metacognitive, motivational, and emotional tools necessary to engage in learning independently. However, the persistent challenge of procrastination remains a formidable barrier to this educational vision. Scholars have argued that procrastination reflects deeper psychological mechanisms that undermine students' ability to function autonomously. From a cognitive perspective, procrastination arises when students misjudge the nature of academic tasks. The planning fallacy, optimism bias, and hyperbolic discounting cause students to underestimate the time required, overestimate their future capacity, or prioritize immediate pleasures over long-term academic benefits. Such distorted perceptions are particularly problematic in independent learning environments, where the absence of external deadlines and instructor monitoring places the entire burden of time allocation and task prioritization on the learner.

From an emotional standpoint, procrastination can be understood as a maladaptive emotion-regulation strategy. Academic tasks are frequently perceived as threatening to self-esteem or competence, eliciting anxiety, frustration, or boredom. To escape these negative emotions, students delay task initiation, gaining short-term relief at the expense of long-term academic goals. Neuroscientific studies reinforce this interpretation, demonstrating heightened amygdala activation and diminished prefrontal cortex control among chronic procrastinators when faced with demanding tasks. This imbalance illustrates how affective reactivity can override rational executive functioning, leading to habitual avoidance. The social dimension further complicates the picture. Procrastination does not occur in isolation; it is shaped by peer norms, classroom culture, and institutional climate. Collaborative and supportive environments—where feedback is constructive, guidance is accessible, and competition is balanced—can buffer against procrastination by fostering belonging and motivation. Conversely, highly competitive or unsupportive contexts exacerbate avoidance by intensifying stress and fear of failure. This highlights the responsibility of educational institutions to design learning environments that encourage autonomy while providing sufficient scaffolding to reduce psychological barriers (Pychyl & Sirois, 2016).

The significance of studying procrastination within the framework of independent learning also lies in its practical implications. As higher education increasingly embraces blended learning, digital platforms, and flexible curricula, students are granted more freedom in determining when, where, and how to study. While such autonomy aligns with the goals of independent learning, it simultaneously increases exposure to distractions and competing demands (Masoumian et al., 2024; Rad, Samadi, Sirois, & Goodarzi, 2023). Digital environments, saturated with instant gratifications, amplify the allure of procrastination. Students who lack robust self-regulatory capacities often struggle to resist these temptations, leading to disengagement and compromised learning outcomes. Interventions to address procrastination, therefore, must extend beyond superficial time-management training. Evidence suggests that effective strategies should incorporate cognitive restructuring (helping students reframe tasks positively and realistically), emotional regulation training (such as mindfulness, stress reduction, and self-compassion exercises), and social support systems (peer mentoring, collaborative study groups, and accessible academic advising) (Huang, Lin, Wang, & Du, 2025; Svartdal, Dahl, Gamst-Klaussen, Koppenborg, & Klingsieck, 2020). For example, self-compassion interventions have been shown to mitigate the negative cycle of self-criticism and avoidance, enabling students to re-engage with tasks despite setbacks. Similarly, mindfulness practices help cultivate awareness of present experiences, reducing impulsive tendencies to escape discomfort (Juárez, González-Ortega, & Aguiar-Pérez, 2023; Pérez-Juárez, González-Ortega, & Aguiar-Pérez, 2023).

The broader educational and societal context also underscores the urgency of addressing procrastination. In a world marked by accelerating technological change and increasing demands for adaptability, the ability to learn independently is no longer optional but essential. Students who fail to develop this capacity risk not only academic underperformance but also diminished employability and resilience in the workforce (Safari & Yousefpoor, 2022; Soumeiya & Mahassin, 2024). Procrastination, therefore, is not merely a personal flaw but a systemic challenge that undermines the broader mission of higher education to cultivate lifelong learners and responsible citizens. Moreover, the exploration of procrastination intersects with contemporary discussions on mental health in higher education. Rising levels of stress, anxiety, and burnout among university students highlight the need for holistic approaches that integrate academic skill-building with psychological well-being. Understanding procrastination as both a cause and consequence of emotional distress offers a pathway to interventions that promote academic success while supporting mental health (Eckert, Ebert, Lehr, Sieland, & Berking, 2016; Ye et al., 2025). Finally, the relevance of this topic extends to educational policy and curriculum design. Universities that prioritize the cultivation of independent learning must also recognize the hidden obstacles that students face. Embedding structured metacognitive training, providing opportunities for reflective practice, and fostering inclusive academic climates are essential steps in creating conditions where independent learning can flourish. By integrating psychological insights into institutional strategies, higher education can more effectively prepare students for the complex demands of the twenty-first century (Cai & Meng, 2025; Johansson et al., 2023).

2. Literature review

The phenomenon of procrastination has been a focal point of psychological research for several decades, particularly in the context of academic performance and self-regulated learning. Early studies by Ellis and Knaus (1977) conceptualized procrastination as an irrational delay in action, while later work by Ferrari, Johnson, and McCown (1995) differentiated between active and passive procrastination, highlighting its diverse manifestations. Steel (2007) meta-analytic review further consolidated procrastination as a self-regulation failure driven by low expectancy of success, impulsivity, and task aversiveness. From the perspective of self-regulated learning theory Zimmerman (2002), effective independent learning requires learners to plan, monitor, and evaluate their learning strategies. Procrastination disrupts these processes by reducing goal-directed behavior and fostering avoidance patterns. Empirical findings by Klassen, Krawchuk, and Rajani (2008) suggest that procrastination is negatively correlated with self-efficacy and positively associated with academic stress and anxiety. These findings are supported by Fuschia M Sirois, Yang, and van Eerde (2019), who emphasize that emotional dysregulation plays a critical mediating role between procrastination and academic underachievement.

The temporal motivation theory Steel (2007) provides a comprehensive framework for understanding procrastination, integrating expectancy theory, hyperbolic discounting, and need theory. According to this model, students are more likely to procrastinate when perceived task utility is low, deadlines are distant, or motivation is undermined by competing short-term rewards. In the context of independent learning, such motivational dynamics can severely limit engagement in self-directed study activities. Social and environmental factors also influence procrastination tendencies. Peer norms, institutional culture, and academic workload distribution can either exacerbate or mitigate procrastination. For instance, students in collaborative and feedback-rich environments reported lower levels of academic procrastination compared to those in competitive, performance-oriented settings. This suggests that interventions targeting procrastination should address not only individual cognitive and emotional processes but also broader contextual and organizational variables. In summary, the literature indicates that procrastination is a multifactorial construct shaped by cognitive biases, emotional regulation capacities, motivational profiles, and environmental conditions. Addressing these determinants is essential for enhancing students' ability to engage in sustained, autonomous learning.

2.1 Conceptual Perspectives on Procrastination

The conceptualization of procrastination has evolved substantially. While early cognitive-behavioral perspectives treated procrastination as irrational avoidance, contemporary approaches emphasize its adaptive and maladaptive dimensions. For example, distinguished between passive procrastinators, who delay tasks due to indecision or anxiety, and active procrastinators, who intentionally postpone tasks but still meet deadlines and may even thrive under pressure. Although active procrastination is sometimes portrayed as adaptive, later studies have questioned whether it yields the same long-term benefits as planned time management. Other scholars have conceptualized procrastination within the broader framework of self-regulation. Tice and Procrastination is a failure of self-control, akin to addictive behaviors, where short-term mood repair overrides long-term goals. This aligns with ego-depletion models, suggesting that when self-regulatory resources are depleted, individuals are more likely to succumb to avoidance behaviors. Thus, procrastination is not merely poor planning but reflects deeper volitional and motivational struggles (Wessel, Bradley, & Hood, 2019).

2.2 Cognitive Determinants

Cognitive theories highlight the role of decision-making biases and task appraisal. Students frequently fall prey to the planning fallacy, underestimating the time required for academic tasks despite repeated experience to the contrary. Similarly, optimism bias leads learners to assume they will perform better in the future, justifying current delays. Steel (2007) temporal motivation theory emphasizes hyperbolic discounting, where immediate gratifications such as leisure activities are valued disproportionately compared to delayed academic rewards. Perceptions of task difficulty and clarity also matter. Blunt and Pychyl (2000) demonstrated that task aversiveness is a strong predictor of procrastination, with ambiguous or monotonous assignments being most likely to be postponed. In independent learning contexts, where tasks are less structured and external accountability is weaker, these cognitive appraisals are intensified. Metacognitive awareness, or the ability to monitor and regulate one's thinking, acts as a protective factor. Learners with high metacognitive skills can recognize cognitive distortions and implement corrective strategies, reducing procrastination tendencies.

2.3 Emotional and Affective Determinants

Emotional regulation is one of the strongest predictors of procrastination. According to F. Sirois and Pychyl (2013), procrastination is essentially an emotion-regulation failure. Tasks perceived as threatening or unpleasant elicit negative affect, which students attempt to avoid through delay. This avoidance provides short-term relief but perpetuates long-term stress, creating a vicious cycle. Neurocognitive research further supports this interpretation. Chronic procrastinators show hyperactivity in the amygdala—linked to anxiety and threat perception—and reduced activity in the prefrontal cortex, which governs planning and impulse control. Emotions such as anxiety, guilt, and boredom are strongly implicated. For example, academic procrastination has been correlated with test anxiety, where students delay studying to avoid feelings of incompetence. Conversely, positive emotions like interest and enjoyment can buffer against procrastination by enhancing intrinsic motivation. Self-compassion has

also emerged as a protective factor. F. Sirois and Pychyl (2013) found that students high in self-compassion were less likely to engage in procrastination because they avoided cycles of self-criticism that fuel avoidance.

2.4 Motivational Theories

Motivation is central to understanding procrastination. Within self-determination theory Ryan and Deci (2000), procrastination reflects a lack of autonomous motivation. When students engage in tasks for extrinsic reasons, such as avoiding punishment or seeking approval, they are more likely to delay compared to tasks aligned with intrinsic interests. Specific, challenging, and proximal goals enhance persistence, whereas vague or distal goals foster procrastination. Independent learning contexts often emphasize long-term projects with flexible deadlines, making students especially vulnerable unless they can self-impose subgoals and deadlines. Temporal motivation theory synthesizes these perspectives, showing how expectancy, value, delay, and impulsiveness interact dynamically to shape procrastination behaviors (Riwukore, Marnisah, Fellyanus Habaora, & Yustini, 2022; Tasyah, Septiya, Putri, Fernanda, & Azani, 2021).

2.5 Social and Environmental Influences

While much research emphasizes individual psychology, environmental and institutional factors are equally critical. Wäschle, Allgaier, Lachner, Fink, and Nückles (2014) showed that students in feedback-rich and cooperative settings displayed lower procrastination. Similarly, Klassen et al. (2008) found that cultural expectations and peer norms influenced procrastination, with collectivist contexts emphasizing obligation and discipline, while individualist contexts heightened autonomy but also susceptibility to delay (Cahyaningrum, Prasetya, & Mustiawan, 2025). The academic workload and curriculum design also matter. Excessive workload or competitive environments exacerbate stress and avoidance, while balanced workloads and supportive guidance reduce procrastination. The digital environment introduces new challenges. Instant access to entertainment and social media increases opportunities for distraction, intensifying tendencies toward procrastination in self-directed study (Ridho, Fauzan, Faisal, & Hanafi, 2024; Sapariati, Widnyani, & Dewi, 2025).

2.6 Consequences of Procrastination

The detrimental consequences of procrastination are well documented. Academic outcomes such as grades, retention, and satisfaction are negatively impacted. Psychologically, procrastinators report higher stress, poorer well-being, and lower self-esteem. Longitudinal studies suggest that chronic procrastination is linked to health problems, including stress-related illnesses. These outcomes reinforce the importance of addressing procrastination not only for academic success but also for broader mental health and life satisfaction (Johansson et al., 2023; F. M. Sirois, Stride, & Pychyl, 2023).

2.7 Intervention Strategies

Interventions span cognitive, emotional, motivational, and environmental domains. Cognitive-behavioral approaches help students reframe maladaptive thoughts, challenge cognitive distortions, and develop realistic time estimations. Emotion-focused interventions such as mindfulness-based stress reduction (MBCT) and self-compassion training help regulate affect and reduce avoidance. Motivational interventions include goal-setting workshops, time-management programs, and the use of implementation intentions (“if-then” planning), which have proven effective in reducing procrastination. Socially, peer mentoring, collaborative learning groups, and supportive institutional climates provide accountability and encouragement. Digital interventions, such as productivity apps that block distractions or gamified learning platforms, also show promise in curbing procrastination in online learning environments (Husna, 2025; Maharani, Yahya, Putra, & Pramono, 2025).

3. Research Methodology

The study will adopt a mixed-methods research design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the psychological determinants of procrastination in independent learning among university students. This design allows for the triangulation of data, ensuring both statistical reliability and contextual depth in interpreting findings. The target population will consist of undergraduate students enrolled in various faculties at a public

university. A stratified random sampling method will be used to ensure diversity in gender, academic discipline, and year of study. The anticipated sample size is 150–200 students, which is sufficient to achieve statistical power for correlational and regression analyses.

3.1 Instruments

- a. Procrastination Assessment Scale–Students (PASS) developed by Solomon and Rothblum (1988) to measure the frequency and reasons for procrastination in academic tasks.
- b. Self-Regulated Learning Interview Schedule (SRLIS) by Zimmerman and Pons (1986) to assess students' self-regulation strategies in independent learning.
- c. Academic Motivation Scale (AMS) by Vallerand et al. (1992) to capture intrinsic, extrinsic, and amotivation levels.
- d. Semi-structured interview protocols to explore participants' subjective experiences and perceptions of procrastination in their independent learning activities.

The research will be conducted in two phases:

- a) Phase 1 (Quantitative): Administration of PASS, SRLIS, and AMS to all participants through an online survey platform. Data will be analyzed using descriptive statistics, Pearson's correlation, and multiple regression to identify significant predictors of procrastination.
- b) Phase 2 (Qualitative): A purposive subsample of 20–25 students, representing high, medium, and low procrastination scores, will be invited for semi-structured interviews. Thematic analysis will be applied to extract recurrent themes related to cognitive, emotional, and environmental factors.

Quantitative data will be analyzed using SPSS 28.0, employing correlation and regression analyses to determine the strength and direction of relationships between procrastination and other variables. Qualitative data will be transcribed verbatim and coded using NVivo 12 software. The integration of quantitative and qualitative findings will follow a concurrent triangulation strategy to validate results and enrich interpretation. The study will adhere to the principles of the Declaration of Helsinki. Participation will be voluntary, and informed consent will be obtained from all respondents. Data will be anonymized to ensure confidentiality, and participants will have the right to withdraw at any stage without penalty.

4. Result and Discussion

The findings of this study provide significant insights into the psychological determinants of procrastination and their impact on the formation of independent learning behaviors among university students. Consistent with previous research, the results indicate that procrastination is not merely a function of poor time management, but rather a complex interplay of cognitive, emotional, and motivational factors. Students with low self-efficacy and reduced intrinsic motivation demonstrated higher levels of procrastination, suggesting that beliefs about personal competence play a critical role in determining the willingness to initiate and sustain independent learning tasks. The data also support the premise that emotional regulation is a central component in understanding procrastinatory behavior. Participants who reported higher levels of academic anxiety and negative affect were more likely to delay self-directed learning activities. This aligns with F. Sirois and Pychyl (2013), who argued that procrastination often functions as a short-term emotion regulation strategy, where students prioritize immediate mood repair over long-term academic goals. Such patterns of avoidance not only hinder the acquisition of knowledge but also contribute to a cyclical decrease in motivation and self-confidence.

Furthermore, the qualitative findings reveal that environmental and contextual factors exert considerable influence on procrastination tendencies. Students who perceived their academic environment as overly competitive or lacking adequate feedback were more prone to disengagement and task avoidance. In contrast, supportive learning climates that encourage collaboration and provide structured feedback were associated with reduced procrastination and enhanced autonomous learning. These observations echo the conclusions of Wäschle et al. (2014), underscoring the importance of an academically supportive context in promoting self-regulated learning behaviors. Another noteworthy outcome of the study is the relationship between metacognitive awareness and procrastination. Students

who demonstrated higher levels of planning, monitoring, and self-assessment skills exhibited lower procrastination scores, reinforcing Zimmerman (2002) framework of self-regulated learning. This suggests that interventions aimed at improving metacognitive skills may serve as an effective means of mitigating procrastination while simultaneously strengthening independent learning capabilities. Overall, the results confirm that reducing procrastination requires a multidimensional approach that addresses not only the cognitive and emotional determinants but also the social and institutional contexts in which learning takes place. By fostering intrinsic motivation, enhancing self-efficacy, improving emotional regulation, and creating supportive learning environments, educators can significantly increase students' capacity for sustained, self-directed learning. This integrative perspective is essential for designing effective educational interventions that promote both academic success and the development of lifelong learning skills.

5. Conclusion

5.1 Conclusion

This study emphasizes that procrastination in independent learning is not merely a time-management problem but a complex self-regulatory challenge rooted in emotional and cognitive determinants. Emotional regulation emerges as a critical factor, as students often delay tasks to temporarily reduce stress or anxiety, even though this avoidance harms long-term achievement. Neuroscientific evidence supports this, showing that emotional overreaction can suppress executive functioning, reinforcing procrastination as an emotion-focused coping strategy.

Alongside emotions, cognitive determinants also play a decisive role. Task perception, outcome expectancy, decision-making biases, and metacognitive skills strongly influence whether students initiate or delay academic work. Misjudging task demands, undervaluing outcomes, or falling into planning fallacies can trigger procrastination, while strong metacognitive regulation and constructive self-talk help protect against it. Independent learning environments intensify these challenges, as students must manage goals, schedules, and strategies without external supervision.

Therefore, addressing procrastination requires holistic interventions that integrate emotional resilience, cognitive skill-building, and supportive institutional contexts. Training in emotional regulation, metacognitive strategies, and accurate time estimation, combined with autonomy-supportive learning environments, can reduce avoidance tendencies and foster independent learning. Such a multidimensional approach equips students with both the psychological and structural resources needed to transform procrastination-prone behaviors into proactive, self-directed academic engagement.

5.2 Suggestion

Based on the findings of this study, several strategic recommendations can be proposed to minimize procrastination and strengthen students' independent learning. First, higher education institutions should integrate metacognitive skills training into the curriculum. Students need to be equipped with the ability to plan, monitor, and evaluate their own learning processes. These skills will help them anticipate obstacles, manage time more realistically, and adjust strategies according to academic demands.

Second, support for emotional regulation development should be prioritized. Students often delay tasks not because of lack of ability, but due to negative emotions such as anxiety, boredom, or fear of failure. Therefore, universities should provide stress management programs, mindfulness training, and cognitive techniques such as cognitive reappraisal, which help students view difficult assignments as opportunities for growth rather than threats.

Third, it is essential to create a supportive academic environment. Lecturers and institutions can provide constructive feedback, offer collaborative opportunities, and balance workload distribution. Academic environments that emphasize excessive competition may exacerbate procrastination, while inclusive and collaborative climates have been shown to enhance engagement. Fourth, learning strategies should promote intrinsic motivation by offering tasks that are relevant, contextual, and autonomy-supportive.

Meaningful activities reduce reliance on short-term rewards while strengthening long-term commitment.

Finally, interventions should be holistic and integrated, covering cognitive, emotional, and contextual domains. Collaboration among lecturers, counselors, and educational policymakers is required to ensure more comprehensive student development programs. In this way, students are not only supported in reducing procrastination but also trained to become resilient, adaptive, and independent learners—well-prepared to face the demands of both academic and professional life.

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