BRIDGING THE GAP: A DEVELOPMENTALLY-SENSITIVE INTERVENTION FRAMEWORK FOR CHILDHOOD PROCRASTINATION

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Abstract: *Procrastination in children represents a significant self-regulatory failure, yet it is distinct from the conscious, irrational delay observed in adults. Grounded in recent developmental research (Mahy, Munakata, & Miyake, 2024), this review argues for a reconceptualization of childhood procrastination as an early behavioral precursor linked to underdeveloped executive functions, future-oriented thinking, and emotion regulation. Informed by Miyake and Kane's (2022) process model—which identifies task-induced negative moods and goal-management failures as core mechanisms—we propose a developmental framework for intervention. This integrative approach focuses on two synergistic strategies: (1) optimizing the child's environment to make it less "procrastination-friendly" through structured routines and minimized distractions, and (2) teaching simple, habitualized compensatory strategies, such as "starting rituals" and task segmentation. By proactively targeting these underlying mechanisms, this framework provides a practical roadmap for parents and educators to foster self-efficacy and help children build adaptive habits.*

Keywords: *childhood procrastination; self-regulatory failure; executive functions; goal management; episodic future thinking; developmental interventions.*

Introduction

Procrastination, the voluntary delay of tasks despite foreseeing negative consequences, is a pervasive behavior with significant costs. In academic settings, it impairs performance and leads to lower grades (Akpur, 2020). More broadly, chronic procrastination is linked to higher levels of anxiety, depression, poorer sleep, and diminished financial and overall well-being (Johanson et al., 2023; Sirois, 2015).

Theoretical explanations for this behavior predominantly center on emotional and self-regulatory failures. Procrastination is often viewed

as a maladaptive strategy for managing negative emotions associated with a task (Milgram, Sroloff, & Rosenbaum, 1988) or a failure of self-regulation, manifesting as an inability to delay gratification (Dewitte & Schouwenburg, 2002) and a lack of goal-orientation (Howell & Watson, 2007). Key protective factors against procrastination include conscientiousness (Schouwenburg & Lay, 1995) and future-oriented thinking, which helps individuals better consider the long-term consequences of their delay (Rebetez et al., 2016).

While these mechanisms are better established in adults and adolescents, research on their emergence in early childhood is limited. Recent studies, however, suggest that the foundations of procrastination are present in preschool-aged children (3-6 years). For instance, lower executive functioning and a reduced ability to plan have been inversely linked to procrastination in this age group (Fuke et al., 2023). Similarly, self-regulation and negative affectivity have been identified as significant predictors. Environmental factors also play a role; parental education has been linked to procrastination in older preschoolers (Kamber et al., 2024), echoing findings in adults where lower income and educational levels are associated with higher procrastination (Chow, 2011).

Miyake and Kane (2022) argue that academic procrastination is a stable, trait-like tendency with strong personality correlates, particularly low conscientiousness and high impulsivity. Their proposed framework encompasses a holistic, multipronged approach on adult procrastination based on their process model of procrastination arguing for two major causes of academic procrastination: (1) task-induced negative moods and (2) goal management failure. Rather than testing single procrastination interventions in isolation—which often yield small, difficult-to-detect effects—the authors argue for combining multiple "small-teaching" techniques that collectively target the key facets of procrastination in educational contexts- in real educational settings (e.g. classrooms) over a prolonged period of time (at least a semester). As emphasized in their Process (Self-Control) model of academic procrastination, the authors argue that interventions should directly address the two hypothesized causes of this maladaptive behavior: task-induced negative moods and goal-management failures. Additionaly, they suggest targeting two facilitating contextual factors that can reduce procrastination: metacognitive reflection (to help students evaluate and adjust their strategies) and social community building (to create a shared classroom commitment/peer support in reducing procrastination) in order to address the multifaceted nature of this chronic dysfunctional behavior.

Theoretical Views on Procrastination

According to Mahy and collaborators (2024) there are several requirements that need to be simultaneously present in order for a behavior to be considered procrastination in adults: delaying to begin or finish a task; postponement is intentional; the delay is not imposed by other factors that cannot be controlled (e.g. a sudden illness); there is an anticipation of adverse future effects.

Several prominent theoretical frameworks explain why adults procrastinate. The first, a utilitarian model - *Temporal Motivation Theory* (Steel, 2007) - posits that the motivation to act is a function of the task's expected utility, the individual's confidence, their impulsivity, and the proximity of the deadline. According to this model, tasks are delayed if their perceived value is low or the deadline is too distant.

The second, a process model - the *Short-Term Mood Repair Theory* (Sirois & Pychyl, 2013)- focuses on the emotional processes behind delay and the difficulty in regulating negative emotions. It suggests that aversive tasks evoke negative feelings (e.g., anxiety, boredom), prompting individuals to avoid the task to repair their immediate mood. Ironically, this avoidance often leads to greater negative emotions and poorer performance in the long run.

More recently, the *Stress Context Vulnerability Model* (Sirois, 2023) adds a crucial layer, suggesting that stress depletes our mental resources, making the "easy way out" of procrastination more tempting. As the author stated (Sirois, 2023:1): «the risk for procrastination increases in stressful contexts primarily because procrastination is a low-resource means of avoiding aversive and difficult task-related emotions».

A recent comprehensive review by Mahy, Munakata and Miyake (2024) integrates research on procrastination in adults and children, highlighting critical implications for understanding its developmental origins. A central argument is that the dominant "multicomponent definition" of procrastination in adult research—which requires a voluntary, intentional delay despite expecting negative consequences—is too restrictive for children. Young children lack the full introspective abilities to report on such intentions and consequences, meaning their observable task delays, while functionally similar to adult procrastination, are often excluded by this strict definition. The authors (Mahy et al., 2024) propose a more flexible, continuous view where these early behavioral delays are considered precursors or early manifestations of procrastination. Young children procrastinate on different tasks (e.g., chores, then homework) because their *executive functions* (like planning and shifting between tasks), *prospective*

memory (remembering to execute future intentions), future thinking (the ability to anticipate future needs and act accordingly) and *emotion regulation* abilities are underdeveloped. They struggle to manage the negative feelings (boredom, frustration) that aversive tasks trigger, leading them to seek immediate mood repair through avoidance, a core mechanism observed in procrastination in adults.

Research shows that procrastination emerges early, with its targets evolving with age: younger preschoolers (ages 3-4) procrastinate on routines like cleaning up or brushing teeth, while older preschoolers (ages 5-6) begin to delay homework and chores (Fuke, Kamber, Alunni, & Mahy, 2023). However, the developmental picture is incomplete, as research on younger children is contradictory; some studies suggest procrastination increases in early childhood while others indicate it decreases (Sutter, Untertrifaller, & Zoller,2018). Environmental factors, particularly *parenting styles* characterized by greater democratic participation and autonomy support, are associated with lower procrastination tendencies in children (Kamber et al., 2024).During adolescence, procrastination is a more frequent phenomenon as teenagers face more demanding schoolwork, extracurricular activities, and complex social relationships.They must handle multiple competing goals with newfound independence, often without the fully developed skills to manage their time effectively (Reinecke et al., 2018).

Interventions

In light of these theories, various interventions have been developed to reduce procrastination, particularly in academic settings. As academic procrastination is driven by fear of failure, perfectionism, and poor emotional regulation, a recent review (Ramadhani et al., 2026) reported that procrastination can be effectively reduced through personalized interventions like cognitive-behavioral therapy, motivational strategies, and digital planning tools (technology-assisted interventions). Recent meta-analyses report that these interventions can yield small to large effect sizes (Rozental et al., 2018; Malouff & Schutte, 2019). Given the role of stress in depleting self-regulatory resources, as highlighted by Sirois (2023), approaches that improve stress management could be particularly beneficial in highly stressful contexts. *Mindfulness* (Sirois & Tosti, 2012) and *self-compassion* are critical (Sirois, 2014), yet often depleted, psychological resources that play a central role in the relationship between stress and procrastination. Consequently, cultivating these abilities is proposed as a key intervention. Mindfulness helps by improving emotion regulation and reducing negative emotions that trigger delay, while self-compassion provides a

kind and accepting framework for coping with stress and personal shortcomings, thereby reducing the need for avoidant coping. Sirois (2023) concludes that fostering mindfulness and self-compassion can mitigate vulnerability to procrastination by bolstering emotional resilience, especially in high-stress contexts.

Miyake and Kane (2022) argue for employing simple teaching strategies for targeting procrastination in educational settings based on their Process (Self-Control) model of Academic Procrastination. Hence, in order to (1) *alleviate negative emotions related to the task* (cause no. 1 of procrastination) they suggest the following: a) encouraging students to tackle the aversive task as soon as possible by practicing starting rituals (e.g. using the 5 second rule; Pomodoro technique), b) reduce the aversion related to the task (e.g. understanding the motivation/reward in doing the task; focusing on the process instead of the end result; deconstruct a complex assignment into smaller, sequential steps with set deadlines). Second, in order to tackle the second cause of procrastination, namely, (2) *failure in managing goals*, the authors suggest: a) emphasizing the importance of adhering and maintaining long-term goals (e.g. learning how to formulate concrete and specific long-term goals), b) make the goals visible and easy to remember/recall (e.g. using calendars, reminders), c) managing distractions (e.g. formulating if-then scenarios), d) prevent distractions by controlling their study environment (e.g. ensure the study area is free from access to smartphones).

Mahy, Munakata and Miyake (2024) affirm that early, preventative approaches are promising. Instead of direct executive functioning training (which shows limited transfer), effective strategies may involve modifying the environment to make it less "procrastination-friendly", such as by establishing clear routines, reducing distractions, and having instructors break down large assignments into smaller, concrete steps with shorter deadlines. Also, furthermore, the authors advocate for teaching children simple, habitual strategies to circumvent the causes of delay, such as "*starting rituals*" or cognitive reappraisal techniques (e.g. asking "what would someone else do?,") to help children regulate the negative emotions that trigger delay . These starting rituals and reappraisal techniques can be practiced repeatedly until they become automatic, thereby circumventing the need for constant willpower.While therapy-based interventions like cognitive behavioral therapy show the largest effects in meta-analyses, they are often inaccessible and impractical for widespread use with children. Mahy and collaborators (2024) ground these interventions in the *science of habit formation* (Albarracín et al., 2024), explaining that effective efforts must disrupt the negative habit loop of procrastination

(where a task cue leads to avoidance, which is rewarded by mood repair) and instead build new, positive cue-response associations. Therefore, a successful intervention is less about eliminating a child's impulsivity or task aversion and more about equipping them with a practiced toolkit of strategies and structuring their environment to make the desired behavior the easiest and most automatic path. Albarracin and collaborators (2024) state that individuals act consistently with past routines; once a behaviour becomes habitual, it is *a better predictor* of future behaviour than knowledge, attitudes, or beliefs. In order to create a habit and maintain it, repeated association between behavior and stable cues in the environment (same location, same time, actions that precede the behavior). Using implementation intentions ("If it's 8 AM, I'll go for a walk") strengthens the cue–response link. Early on, external supports such as reminders, rewards, or social encouragement help maintain repetition until the action becomes self-sustaining and automatic. The key is to make the behaviour easy, rewarding, and contextually anchored- performing it the same way in the same situation each time. Over time, this repetition builds automaticity, allowing the behaviour to occur with little thought or motivation, which marks the formation of a true habit. Habit formation is the most powerful individual predictor for behavioural change.

An intervention to reduce procrastination in children and adolescents through habit formation should be grounded in principles of automaticity, cue–response learning, and environmental consistency, as outlined in contemporary behavioural science (Albarracín et al., 2024). Procrastination often arises from failures in self-regulation and delayed task initiation; therefore, the intervention must shift behavioural control from effortful intention to automatic execution triggered by stable contextual cues.

The program would begin by establishing specific implementation intentions (e.g., *"If it is 5:00 PM, then I will start my homework at my desk"*), thereby creating explicit cue–behaviour contingencies. Through repeated performance under identical conditions, the cognitive demand associated with task initiation decreases, fostering context-dependent automaticity. Teachers and caregivers would facilitate this process by ensuring environmental stability (consistent workspace, routine scheduling, and limited distractions) and external reinforcement (praise or token rewards) during the early acquisition phase, which enhances behavioural consistency and strengthens cue–response associations.

To consolidate the habit, feedback mechanisms and self-monitoring tools (e.g., digital reminders, progress charts) would be employed

initially, then gradually withdrawn as self-cueing develops. Habit substitution techniques could also be introduced to counteract avoidance tendencies, replacing maladaptive routines (e.g., "checking the phone before starting homework") with adaptive preparatory actions (e.g., "reviewing tomorrow's task list"). Over time, repetition within a stable temporal and spatial context promotes the transition from intentional control to automatic initiation, reducing the reliance on motivational states.

Scientifically, the intervention capitalizes on the contextual cueing and reinforcement mechanisms underlying procedural learning, positioning habit formation as a sustainable behavioural regulation strategy. By embedding academic behaviours into predictable routines, the programme aims to produce durable reductions in procrastination and improvements in self-regulated learning through the development of automatic, context-triggered study habits.

Conclusions and future directions

The present paper advances a developmental and habit-based framework for understanding and reducing procrastination in childhood. It argues that early manifestations of procrastination are best conceptualized as self-regulatory challenges rooted in the gradual maturation of executive functions, emotion regulation, and future-oriented cognition. From this perspective, interventions should not rely primarily on motivational enhancement, but rather on systematic environmental structuring and the cultivation of automatic, adaptive routines. By embedding task initiation within consistent contextual cues and promoting repetition under stable conditions, children can shift from effortful self-control toward automatic engagement. In this sense, habit formation serves as a developmentally appropriate and empirically grounded mechanism for fostering self-regulated learning and mitigating procrastination tendencies in educational and home environments. Moreover, to effectively address heightened vulnerability to procrastination under stress, interventions that target both stress management and procrastination are key (Sirois, 2023). *Self-compassion*, defined as a kind, accepting, and mindful stance toward personal shortcomings, serves this dual purpose. It functions as a potent coping mechanism that alleviates stress and is empirically linked to reduced procrastination. Crucially, because self-compassion can be nurtured through short-term training or self-help practices, it represents a practical and accessible approach for fostering resilience when coping resources are depleted.

For educators and parents, these findings underscore the importance of creating predictable, structured environments that support consistent

task engagement rather than relying solely on verbal encouragement. Teachers can promote productive habits by implementing routine-based classroom practices, breaking assignments into smaller, sequential steps, and establishing visible reminders or cues for task initiation. Parents can reinforce these strategies at home by maintaining stable daily schedules, designating a specific time and place for homework, and providing positive reinforcement during the early stages of habit acquisition. Over time, these repeated cue–response pairings reduce the cognitive and emotional effort required to begin tasks, fostering sustainable self-regulation and academic persistence. In this way, a focus on habit formation bridges developmental psychology and educational practice, offering a feasible and evidence-based pathway to help children and adolescents overcome procrastination.

Future research should aim to empirically test the developmental–habitual framework proposed here by examining how early interventions based on environmental structuring and habit formation influence children's self-regulation and academic outcomes over time. Longitudinal studies could clarify whether the repeated pairing of contextual cues with task initiation in early school years predicts more stable self-regulatory patterns during adolescence. Experimental approaches are also needed to identify which components of habit-based interventions—such as cue selection, repetition frequency, or feedback mechanisms—contribute most effectively to reducing procrastination. Importantly, in high-stress contexts, interventions should also incorporate elements that foster self-compassion and mindfulness, as these resources help children manage task-related negative emotions and buffer against the depleting effects of stress (Sirois, 2003). By combining stable environmental cues with habitualized compensatory strategies and emotional support, adults can help children transition from effortful self-control to automatic, self-regulated engagement with tasks, thereby laying a sustainable foundation for long-term adaptive behavior and reduced procrastination.

References

Akpur, U. (2020). The effect of procrastination on academic achievement: a meta-analysis study. International Journal of Educational Methodology, 6(4), 681-690. https://doi.org/10.12973/ijem.6.4.681

Albarracín, D., Fayaz-Farkhad, B. & Granados Samayoa, J.A. (2024). Determinants of behaviour and their efficacy as targets of behavioural change interventions. Nat Rev Psychol 3, 377–392. https://doi.org/10.1038/s44159-024-00305-0

Chow, H. P. (2011). Procrastination Among Undergraduate Students: Effects of Emotional Intelligence, School Life, Self-Evaluation, and Self-Efficacy. Alberta Journal of Educational Research, 57(2), 234–240. https://doi.org/10.11575/ajer.v57i2.55479

Dewitte, S., & Schouwenburg, H. C. (2002). Procrastination, temptations, and incentives: The struggle between the present and the future in procrastinators and the punctual. European Journal of personality, 16(6), 469-489. https://doi.org/10.1002/per.461

Fuke, T. S. S., Kamber, E., Alunni, M., & Mahy, C. E. V. (2023). The emergence of procrastination in early childhood: Relations with executive control and future-oriented cognition. Developmental Psychology, 59(3), 579–593. https://doi.org/10.1037/dev0001502

Howell, A. J., & Watson, D. C. (2007). Procrastination: Associations with achievement goal orientation and learning strategies. Personality and Individual Differences, 43(1), 167–178. https://doi.org/10.1016/j.paid.2006.11.017

Johansson F, Rozental A, Edlund K, et al. Associations Between Procrastination and Subsequent Health Outcomes Among University Students in Sweden. JAMA Netw Open. 2023;6(1):e2249346. doi:10.1001/jamanetworkopen.2022.49346

Kamber, E., Fuke, T. S., Alunni, M., & Mahy, C. E. (2024). Procrastination in early childhood: Associations with self-regulation, negative affectivity, and the home environment. Early Childhood Research Quarterly, 66, 75-85. https://doi.org/10.1016/j.ecresq.2023.09.002

Mahy, C. E. V., Munakata, Y., & Miyake, A. (2024). Mutual implications of procrastination research in adults and children for theory and intervention. Nature Reviews Psychology, 3, 589–605. https://doi.org/10.1038/s44159-024-00341-w

Malouff, J. M. & Schutte, N. S. (2019) The efficacy of interventions aimed at reducing procrastination: a meta-analysis of randomized controlled trials. J. Couns. Dev. 97, 117–127. https://doi.org/10.1002/jcad.12243

Milgram, N. A., Sroloff, B., & Rosenbaum, M. (1988). The procrastination of everyday life. Journal of Research in Personality, 22(2), 197-212. https://doi.org/10.1016/0092-6566(88)90015-3

Miyake, A., & Kane, M. J. (2022). Toward a Holistic Approach to Reducing Academic Procrastination With Classroom

Interventions. Current Directions in Psychological Science, 31(4), 291-304. https://doi.org/10.1177/09637214211070814

Ramadhani, E., Setiyosari, P., Indreswari, H., Setiyowati, A. J., & Putri, R. D. (2026). Academic procrastination: A systematic review of causal factors and interventions. Journal of Behavioral and Cognitive Therapy, 36(1), 100552.

Rebetez, M. M. L., Barsics, C., Rochat, L., D'Argembeau, A., & Van der Linden, M. (2016). Procrastination, consideration of future consequences, and episodic future thinking. Consciousness and cognition, 42, 286-292. doi: 10.1016/j.concog.2016.04.003

Reinecke, L., Meier, A., Beutel, M. E., Schemer, C., Stark, B., Wölfling, K., & Müller, K. W. (2018). The relationship between trait procrastination, internet use, and psychological functioning: Results from a community sample of German adolescents. Frontiers in psychology, 9, 913. https://doi.org/10.3389/fpsyg.2018.00913

Rozental, A. et al. (2018) Targeting procrastination using psychological treatments: a systematic review and meta-analysis. Front. Psychol. 9, 1588 (2018). https://doi.org/10.3389/fpsyg.2018.01588

Schouwenburg, H. C., & Lay, C. H. (1995). Trait procrastination and the Big Five factors of personality. Personality and Individual Differences, 18(4), 481–490. https://doi.org/10.1016/0191-8869(94)00176-S

Sirois, F. M. (2014). Procrastination and stress: Exploring the role of self-compassion. Self and Identity, 13(2), 128-145. https://doi.org/10.1080/15298868.2013.763404

Sirois, F. M. (2015). A self-regulation resource model of self-compassion and health behavior intentions in emerging adults. Preventive medicine reports, 2, 218-222. https://doi.org/10.1016/j.pmedr.2015.03.006

Sirois, F. M. (2023). Procrastination and stress: A conceptual review of why context matters. International Journal of Environmental Research and Public Health,20(6), 5031. https://doi.org/10.3390/ijerph20065031

Sirois, F., & Pychyl, T. (2013). Procrastination and the priority of short-term mood regulation: Consequences for future self. Social and Personality Psychology Compass, 7(2), 115–127. https://doi.org/10.1111/spc3.12011

Sirois, F. M., & Tosti, N. (2012). Lost in the moment? An investigation of procrastination, mindfulness, and well-being. Journal of

Rational-Emotive & Cognitive-Behavior Therapy, 30(4), 237-248. doi: 10.1007/s10942-012-0151-y

Sutter, M., Untertrifaller, A. & Zoller, C. Busy little bees - an experiment on diligence and endogenous time scheduling in early childhood. briq/IZA Workshop on Behavioral Economics of Education, https://conference.iza.org/conference_files/behavioral_2019/zoller_c25601.pdf

Steel, P. (2007). The nature of procrastination: a meta-analytic and theoretical review of quintessential self-regulatory failure. Psychological bulletin, 133(1), 65-94. doi: 10.1037/0033-2909.133.1.65.