

Academic self-efficacy, procrastination, and achievement: a review of theory and educational interventions

Qiaoyi LIN

Department of Psychology, The University of British Columbia, Vancouver V6T 1Z4, Canada

Abstract: Academic procrastination represents a prevalent failure in students' self-regulated learning, and how capable they believe themselves to be is among the factors most reliably tied to that behavior. This paper integrates theoretical and empirical research exploring the interrelations among academic self-efficacy, procrastination, and academic achievement, and evaluates the educational strategies designed to enhance students' self-regulation. Building on Bandura's Social Cognitive Theory and Steel's Temporal Motivation Theory, the review contends that students with low perceived capacity to manage their own learning are prone to academic procrastination, and such procrastination in turn impairs performance. Pooled findings across studies show a positive correlation between efficacy beliefs and academic achievement, a negative correlation between academic procrastination and achievement, and demonstrate a partial mediating role of efficacy in the procrastination–achievement relationship. Approaches rooted in self-regulated learning, structured goal setting, and cognitive-behavioral methods appear promising for curbing procrastination and boosting academic outcomes.

Keywords: academic self-efficacy; procrastination; academic achievement; self-regulated learning

1 Introduction

Students frequently postpone tasks they fully intend to finish, aware that the wait will cost them—a pattern found across classrooms and campuses alike [1]. In his meta-analytic review, Steel (2007) treated this kind of delay as a prime illustration of self-regulation gone wrong, and repeated postponement has been tied to weaker grades, heightened stress, and poorer well-being. Running parallel to this line of research is an extensive literature on academic self-efficacy—how confident learners feel about their capacity to arrange and complete what school tasks demand. Ever since Bandura (1997) placed such beliefs at the heart of human agency, self-efficacy has surfaced repeatedly as one of the most powerful motivational predictors of how well students perform [2-3].

These two ideas are tightly connected. When learners doubt their ability to organize, track, and finish their coursework, they tend to procrastinate more frequently, and each fresh episode of delay can diminish their confidence, establishing a self-feeding cycle. The subsequent sections systematically elaborate on relevant theories and empirical evidence linking efficacy beliefs, procrastination, and academic attainment, and then examine how targeted interventions might break that self-feeding cycle by strengthening self-regulation.

2 Theoretical framework

Two theories frame this discussion. Within social cognitive theory, self-efficacy refers to what people believe they are

able to accomplish in a given domain [4]. Such beliefs grow chiefly out of earlier successes, and they influence which tasks a person takes on, how much energy they invest, and whether they keep going when things get hard. In school contexts, scholars separate confidence in a specific academic task from confidence in one's ability to manage the learning process itself—organizing study, keeping tabs on progress, warding off distractions, and applying suitable strategies [5]. It is this second, regulatory form of confidence that proves most consequential for procrastination.

Temporal Motivation Theory accounts for procrastination by merging expectancy theory with the notion that rewards lose value the further off they lie [6]. On this view, the pull to act grows when a task seems both winnable and worthwhile, and it fades as a person's impatience and the wait for the payoff increase. As future rewards undergo substantial temporal discounting, academic tasks with remote deadlines and low intrinsic appeal are prone to being postponed. Since the expectancy component overlaps with self-efficacy, shaky confidence weakens motivation and invites postponement; fittingly, Steel (2007) singled out low self-efficacy, distaste for the task, and impulsiveness as the sturdiest correlates of procrastination [7]. A related perspective recasts procrastination as a way of managing feelings in the moment—sidestepping an unpleasant task to escape immediate discomfort, while handing the burden to one's later self [8].

3 Relationships among the constructs

Efficacy beliefs and attainment. Pooling many studies, Multon et al. (1991) found that stronger efficacy beliefs accompanied both better performance and greater persistence, with the size of the link shifting according to learners' age and study design. Longitudinal, cross-lagged work suggests the influence runs both ways: believing one can succeed forecasts later attainment, and earlier attainment feeds back into later belief [9]. Among the non-cognitive factors bearing on university grades, efficacy sits near the top [10].

Procrastination and attainment. Drawing on 33 studies and more than 38,000 students, Kim and Seo (2015) reported a mean correlation of approximately $r = -.13$ between procrastination and academic performance—a link that grew stronger for continuous coursework than formal examinations, and the magnitude of the correlation was elevated in younger student populations. The relatively small overall figure is largely attributable to heterogeneous measurement tools for procrastination and academic performance, yet its negative direction holds up across the literature.

Efficacy beliefs and procrastination. Comparing several self-related measures, Klassen, Krawchuk, and Rajani (2008) showed that confidence in one's ability to self-regulate outpredicted the rest when it came to procrastination [11]; the learners suffering severe procrastination tend to have lower academic averages and poorer self-regulatory efficacy. Therefore, the key protective factor against procrastination is self-efficacy for self-regulation, instead of general academic self-confidence alone.

Putting the pieces together. Taken as a whole, the evidence supports a mediating model: thin efficacy encourages delay, delay pulls attainment down, and efficacy helps carry the delay-to-grades effect [12]. The system is not static—stumbling after a delay erodes confidence and deepens the spiral, whereas a success replenishes it—which is exactly why stepping in early pays off.

4 Educational interventions

Since both efficacy and self-regulation can be modified, they constitute sensible targets for intervention. Since confidence is built mainly through experiences of succeeding, arranging a course so that students meet early, reachable wins—staged assignments, ongoing feedback, and near-term goals—can strengthen it. Zimmerman's (2002) three-phase cycle of self-regulated learning, moving from planning through action to reflection [13], supplies a workable model, and Zimmerman, Bandura, and Martinez-Pons (1992) demonstrated that regulatory confidence and self-set goals operate in tandem to support achievement [14]. Coaching learners to fix concrete short-range goals, map out their work, watch their

own progress, and look back on it lessens their dependence on eleventh-hour effort.

In line with Temporal Motivation Theory, tactics that bring far-off rewards psychologically closer—spaced interim due dates, implementation intentions (if-then plans), and set schedules—tend to lift motivation and trim delay; deadlines imposed by an instructor especially help those who struggle to structure the work themselves. And because putting things off partly serves to manage mood, cognitive-behavioral and self-compassion interventions which reduce barriers to task initiation and mitigate excessive self-criticism, can disrupt the cycle of habitual task avoidance. Integrated analyses of existing research indicate that these strategies are able to alleviate procrastination. However, the magnitude of their effects hinges on two factors: the intensity of intervention implementation, and whether students maintain consistent engagement with the strategies. In addition, rigorously controlled experimental trials remain scarce. Such interventions yield optimal outcomes only when they simultaneously enhance learners' self-regulatory efficacy and restructure external task environments.

5 Implications for educational practice

Several practical implications can be drawn. Student-support efforts ought to cultivate both learners' command of subject knowledge and learners' faith in their ability to self-regulate their studies—a mindset that study-skills workshops can foster. The way courses and assessments are designed can mitigate the discounting of distant rewards: breaking deadlines into progressive milestones, implementing regular low-stakes quizzes, and delivering timely feedback all provide short-term targets and the small wins to foster students' self-efficacy. Given that delay tracks more tightly with grades among younger and first-year students (Kim & Seo, 2015), early identification of academic struggles and targeted support during critical educational transitions can generate remarkably large academic benefits. Finally, easing the shame associated with procrastination and steering students toward self-compassion rather than self-reproach can help them return to work they have been dodging. These interventions reinforce one another: they bolster students' self-regulatory confidence and structure coursework to make starting tasks on time the path of least resistance.

6 Limitations and future directions

These conclusions come with qualifications. A good deal of the evidence rests on correlational, single-time-point data, which makes it hard to pin down the causal direction of these effects. Measurement varies widely as well—procrastination is usually captured by self-report and defined inconsistently, while academic performance is indexed anywhere from self-reported grade averages to objective marks—leaving room for common method bias. Because most participants come from Western universities, how far the findings travel across cultures remains unsettled, and controlled trials that follow students over the long term are uncommon. Going forward, researchers would do well to adopt longitudinal and experimental designs, to gauge procrastination through behavioral or learning-analytic traces rather than surveys alone, and to compare across cultural settings; they should also tease apart which ingredients of an intervention do the work and how durable its benefits are, while distinguishing general academic confidence from confidence in self-regulation.

7 Conclusion

Efficacy beliefs, procrastination, and academic attainment function as a single connected system that sits at the center of how students fare. Social Cognitive Theory and Temporal Motivation Theory converge on the same account: low confidence—above all, doubt about one's ability to self-regulate—breeds procrastination, procrastination drags down academic performance, and the resulting setbacks can wear confidence down still further, with pooled evidence backing each link and the mediating part efficacy plays. Because none of these traits is fixed, programs that build regulatory confidence through experiences of success, self-regulated learning, goal setting, and cognitive-behavioral methods—together with course designs that support rather than undercut students—offer a realistic route to reining in procrastination.

The practical takeaway is straightforward: help students believe they can manage their own learning, and build settings in which starting on time is the easier choice.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Klingsieck K B. Procrastination: When good things don't come to those who wait[J/OL]. *European Psychologist*, 2013, 18(1): 24-34. <https://doi.org/10.1027/1016-9040/a000138>
- [2] Multon K D, Brown S D, Lent R W. Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation[J/OL]. *Journal of Counseling Psychology*, 1991, 38(1): 30-38. <https://doi.org/10.1037/0022-0167.38.1.30>
- [3] Schunk D H. Self-efficacy and academic motivation[J/OL]. *Educational Psychologist*, 1991, 26(3-4): 207-231. <https://doi.org/10.1080/00461520.1991.9653133>
- [4] Bandura A. Self-efficacy: The exercise of control[M]. New York: W. H. Freeman, 1997.
- [5] Pajares F. Self-efficacy beliefs in academic settings[J/OL]. *Review of Educational Research*, 1996, 66(4): 543-578. <https://doi.org/10.3102/00346543066004543>
- [6] Steel P, König C J. Integrating theories of motivation[J/OL]. *Academy of Management Review*, 2006, 31(4): 889-913. <https://doi.org/10.5465/amr.2006.22527462>
- [7] Steel P. The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure[J/OL]. *Psychological Bulletin*, 2007, 133(1), 65-94. <https://doi.org/10.1037/0033-2909.133.1.65>
- [8] Sirois F, Pychyl T. Procrastination and the priority of short-term mood regulation: Consequences for future self[J/OL]. *Social and Personality Psychology Compass*, 2013, 7(2): 115-127. <https://doi.org/10.1111/spc3.12011>
- [9] Talsma K, Schütz B, Schwarzer R. et al. I believe, therefore I achieve (and vice versa): A meta-analytic cross-lagged panel analysis of self-efficacy and academic performance[J/OL]. *Learning and Individual Differences*, 2018, 61: 136-150. <https://doi.org/10.1016/j.lindif.2017.11.015>
- [10] Richardson M, Abraham C, Bond R. Psychological correlates of university students' academic performance: A systematic review and meta-analysis[J/OL]. *Psychological Bulletin*, 2012, 138(2): 353-387. <https://doi.org/10.1037/a0026838>
- [11] Klassen R M, Krawchuk L L, Rajani S. Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination[J/OL]. *Contemporary Educational Psychology*, 2008, 33(4): 915-931. <https://doi.org/10.1016/j.cedpsych.2007.07.001>
- [12] Kim K R, Seo E H. The relationship between procrastination and academic performance: A meta-analysis[J/OL]. *Personality and Individual Differences*, 2015, 82: 26-33. <https://doi.org/10.1016/j.paid.2015.02.038>
- [13] Zimmerman B J. Becoming a self-regulated learner: An overview[J/OL]. *Theory Into Practice*, 2002, 41(2): 64-70. https://doi.org/10.1207/s15430421tip4102_2
- [14] Zimmerman B J, Bandura A, Martinez-Pons M. Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting[J/OL]. *American Educational Research Journal*, 1992, 29(3): 663-676. <https://doi.org/10.3102/00028312029003663>