Proceedings of ICEIPI 2026 Symposium: Inclusive Education, Cultural Transformation, and the Ethical Dimensions of Learning
DOI: 10.54254/2753-7048/2026.LD33432

Adolescent Self-Efficacy as a Driver of Academic Achievement

Jiayi Lu

School of Professional and Continuing Education, The University of Hong Kong, Hong Kong, China
13916431468@163.com

Abstract. Academic achievement is pivotal for adolescent development, yet its determinants extend beyond cognitive abilities to include key non-cognitive factors such as self-efficacy. While self-efficacy is recognized as a critical predictor of academic success, the specific mechanisms through which it operates, the conditions that moderate its effects, and variations across different groups remain underexplored in an integrated manner. This literature review aims to systematically address these gaps by synthesizing existing research on how adolescents' academic self-efficacy influences their academic achievement. A thorough review of pertinent studies shows that self-efficacy influences academic outcomes both directly, through increased persistence, goal-setting and engagement, and indirectly, by improving cognitive strategies, self-regulation, and academic emotions. These relationships are moderated by contextual factors like family support, teacher feedback, and peer interaction, and they differ significantly by gender, age, and culture.

Keywords: Academic self-efficacy, Academic achievement, Learning engagement

1. Introduction

Academic achievement is a crucial indicator of adolescents' learning outcomes and cognitive development, profoundly influencing their educational opportunities, self-concept formation, and long-term developmental trajectories [1]. Academic self-efficacy, a student's belief in their ability to complete specific academic tasks successfully, is an essential non-cognitive variable that links psychological motivation to academic behavior [2]. High self-efficacy is not only directly related to higher academic achievement but may also indirectly enhance academic performance through multiple pathways, including influencing learning strategies, emotional regulation, and environmental interactions.

The paper will explore the following questions: How does self-efficacy directly impact academic achievement? Through which mediating mechanisms (such as cognitive strategies and academic emotions) does it indirectly affect academic performance? How do environmental factors such as family and school moderate this relationship? Do differences exist among adolescents of different genders, ages, and cultural backgrounds in this mechanism? To answer these questions, this paper adopts a literature review research method, systematically searching for relevant empirical and theoretical literature in databases such as Web of Science, ERIC, PsycINFO, and CNKI, and summarizing, integrating, and analyzing existing research results. The significance of this paper is in

© 2026 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2753-7048/2026.LD33432

bringing together multiple perspectives from social cognitive theory, motivation theory and emotion theory to further deepen ber systemuityntic understanding in vvrut uiutocrseing element of the crucilsm this underlies the ways self-efficacy can promote academic achievement - and the increasing complexity that comes to be defined in an increasingly complex educational ecosytem and diversified pathw in the system.

2. The dual paths of self-efficacy on academic achievement

2.1. Direct impact

Students with high self-efficacy have a firm belief in their ability to complete academic tasks, which directly influences their behavioral choices and effort levels [2]. According to social cognitive theory, individuals with strong self-efficacy set more challenging goals for themselves, exhibit greater persistence in the face of difficulties, and attribute setbacks more to insufficient effort than to a lack of ability. Direct evidence shows that self-efficacy is a stable and effective predictor of academic achievement. A classic meta-analysis [3,4] revealed a moderate, significant positive correlation between academic self-efficacy and academic performance, with this relationship observed across different academic disciplines (such as mathematics, science, and reading) and educational stages (from primary and secondary schools to higher education).

When encountering difficulties or failures, students with high self-efficacy are more likely to invest greater effort and persist longer to overcome obstacles. For example, in mathematics learning, students who firmly believe they can master concepts are more likely to continue trying different strategies after solving problems incorrectly, rather than giving up. Self-efficacy directly positively predicts students' behavioral, emotional, and cognitive engagement in learning activities. Mart van Dinther et al. [5]'s review clearly states that students' self-efficacy plays a predictive and mediating role in academic achievement, directly influencing students' chosen challenges, efforts, persistence time, and final performance. Likewise, the study conducted by Zhen et al. [6] found a significant positive relationship between academic self-efficacy and students' involvement in their learning ($r = 0.47$, $p < 0.001$), which shows that students' confidence in their ability to perform will correlate positively with their willingness to engage in learning activity, both inside and outside of the classroom setting.

2.2. Indirect impact

A large body of research has shown that self-efficacy is positively correlated with the use of deep and self-regulated learning strategies. For instance, Schunk and Ertmer [7] found that in computer skills learning, providing opportunities for self-assessment (an intervention to enhance self-efficacy) could significantly promote students' self-regulation, thereby improving their performance. Zimmerman, Bandura & Martinez-Pons [8]'s research also indicated that students' self-efficacy can influence their goal setting and the use of self-regulated strategies, thereby predicting academic achievement. Students with high self-efficacy are more adept at using techniques such as organization, processing, and critical thinking to understand and apply knowledge, thereby enhancing the quality and effectiveness of their learning.

Academic emotions are an important emotional pathway connecting self-efficacy and academic achievement. According to the Control-Value Theory [9], self-efficacy, as a control assessment of the learning situation, is a key prerequisite for stimulating different academic emotions. High self-efficacy enables students to view learning tasks more as challenges rather than threats, thereby more

DOI: 10.54254/2753-7048/2026.LD33432

easily experiencing positive emotions such as enjoyment, pride, and hope [10]. As Zhen et al. [6]'s research found, academic self-efficacy is strongly positively correlated with positive academic emotions (such as enjoyment and pride) ($r = 0.58$, $p < 0.001$). At the same time, it can also effectively buffer negative emotions such as anxiety, boredom, and depression. In Zhen et al. [6]'s model, high self-efficacy indirectly promotes learning engagement by reducing negative academic emotions (such as anxiety).

3. Key regulatory factors

3.1. Individual factors

Students who hold the incremental theory or growth mindset tend to attribute their academic performance to controllable internal factors (such as effort level and strategy application) or external factors (such as task difficulty and teacher assistance). This adaptive attribution pattern can maximize successful experiences as "mastering experiences" for efficacy beliefs, and transform failure experiences into learning opportunities, thereby maintaining or even enhancing self-efficacy [11]. In contrast, students who hold the entity theory are accustomed to making non-adaptive attributions, attributing failures to stable and uncontrollable ability deficiencies. This attribution method severely erodes efficacy beliefs and leads to "learned helplessness"; even with occasional successes, it is difficult to transform them into lasting confidence [12]. Research shows that this difference in attribution tendencies can significantly influence the predictive power of self-efficacy for academic persistence, the selection of challenge coping strategies, and final academic performance. At the same time, self-efficacy profoundly influences students' achievement goal system. High self-efficacy prompts individuals to set and pursue mastery goals, and being immersed in the process of achieving these goals can provide rich experiences of success, which in turn consolidate beliefs and form a positive cycle. This positive correlation shows high stability across different cultures, disciplines, and age groups [13]. The relationship between performance-approach goals (focusing on surpassing others and demonstrating abilities) and self-efficacy is more complex and context-dependent. In a moderately competitive, positive-ability-perception environment, the two can be positively correlated; however, in a high-pressure or an environment overly emphasizing rankings, such goals may be accompanied by anxiety, weakening the positive effect of self-efficacy. Performance-avoidance goals (focusing on avoiding appearing incompetent) are generally associated with lower self-efficacy, especially at the high school level and above. This avoidance orientation often accompanies self-doubt and increased anxiety, forming a negative motivational pattern [14].

Self-efficacy, or the belief that one can be successful at completing a task, is also affected by the way an individual perceives their physiological arousal (ex. Increased heart rate, tension) and emotional feelings (ex. Anxiety and excitement) created by the context of doing a task. For individuals with higher levels of self-efficacy, the physiological arousal and emotional feelings that are created when a moderate level of tension occurs (which is indicative of commitment and focus) are interpreted as "Challenging Excitement". For individuals with a lower level of self-efficacy, on the other hand, physiological arousal and emotional feelings that are created by a moderate level of tension (indicative of insufficient ability to do the task) are interpreted as "Threatening Anxiety" [2]. This difference can also lead to behavioral differences: the former face challenges head-on, while the latter avoid and retreat.

DOI: 10.54254/2753-7048/2026.LD33432

3.2. Environmental factors

In the family environment, the nature of support is a key moderating variable. Research has shown that encouraging and warm family support can effectively enhance adolescents' academic self-efficacy. That meeting their needs for autonomy and competence enables self-efficacy to translate into learning engagement and persistence [15,16] more stably. On the contrary, a high-pressure controlling family environment will weaken the positive effect of self-efficacy and even lead to goal avoidance and self-doubt [13]. When parents communicate primarily through "feedback on problems", the negative correlation between them is undeniable [16]. This suggests that the moderating effect of family support is not only reflected in participation but also in the emotional tone and communication content, which are developmental and supportive.

In the school environment, the types of teacher feedback are an important mechanism for regulating self-efficacy. Processive and informative feedback, such as providing constructive suggestions for improvement, can help students attribute success to controllable factors, thereby enhancing the predictive power of self-efficacy for future tasks [15]. Conversely, feedback that emphasizes only results is likely to trigger performance goal orientation. However, it may temporarily enhance self-efficacy; in the long term, it may lead to a disconnect from intrinsic motivation, especially in highly competitive environments, exacerbating ability anxiety [13]. Teacher support plays a particularly significant role in regulating the relationship between self-efficacy and academic performance, especially in maintaining self-efficacy and promoting cross-disciplinary generalization.

The nature of peer relationships also regulates the path through which self-efficacy affects individuals. An individual's confidence in taking on difficult tasks in a peer group can be positively influenced by a supportive and co-operative environment via social affirmation and feelings of belonging, and therefore help convert an individual's self-efficacy into actual behaviours associated with the learning task [2]. In a highly competitive and highly comparative peer environment, self-efficacy may be more closely associated with performance goals, and its predictive power for deep learning engagement and long-term academic persistence may be weakened [13]. Especially after the middle school years, whether peers recognize the value of academic pursuits will significantly regulate the strength of the connection between self-efficacy and learning behaviors.

4. Group differences

The self-efficacy system of teenagers systematically presents differentiated patterns due to the differences in their belonging groups. These differences result from the combined effects of biological factors, socialization processes, and social structural forces.

4.1. Gender differences

In STEM subjects such as mathematics and physics, traditionally regarded as fields where men have an advantage, boys generally report higher self-efficacy than girls. However, objective performance differences may be small or even nonexistent [17]. This disparity mainly stems from the internalization of gender stereotypes, different socialization experiences, and differences in sensitivity to sources of efficacy information. For instance, girls' self-efficacy in mathematics is more susceptible to social persuasion (especially negative feedback) from teachers, parents, others, and they are more likely to be disturbed by the consistency of gender roles in alternative experiences [18]. However, in fields such as language arts, the gender difference patterns may weaken,

DOI: 10.54254/2753-7048/2026.LD33432

disappear, or even reverse. These differences are not fixed. Educational interventions, especially providing positive female role models, conducting growth mindset training, and creating gender-equal classroom environments, can effectively narrow this gender-based gap in self-efficacy.

4.2. Age and grade differences

The development of self-efficacy shows significant domain-specific differentiation and context-sensitive changes. Bong [13]'s research revealed that as cognitive abilities develop and academic experiences accumulate, teenagers' self-judgments of different subject abilities shift from relative generalization to refinement and structuring. The correlation among junior high school students' self-efficacy is relatively high, whereas high school students show significant differentiation in some areas, such as language.

Furthermore, during crucial educational transition periods (such as moving from primary school to junior high school and from junior high school to senior high school), students' academic self-efficacy often declines [19]. This is because the new environment brings higher academic demands, more intense social comparisons, changes in teacher-student relationships, and pressure to explore one's self-identity, all of which challenge the original efficacy beliefs. At this point, the relationship between self-efficacy and academic adaptation becomes particularly close, and students with low self-efficacy face higher academic risks.

4.3. Cultural differences

The cultural background profoundly influences the formation and expression of self-efficacy through its value orientations (such as individualism and collectivism), educational philosophy, and the definition of "ability". In cultures that emphasize collective harmony and interpersonal dependence (such as East Asian cultures), students' self-efficacy may be more significantly influenced by the expectations of important others and social persuasion [20]. For instance, Usher [18] found that the self-efficacy of African American students was particularly affected by the encouraging information from families and communities, which emphasized overcoming racial barriers. This information had both emotional support and the function of reinforcing cultural identity. In contrast, in cultures that emphasize individual independence and competition (such as the mainstream cultures of Europe and America), the direct experience of individuals may be given greater weight.

5. Conclusion

In summary, this study, through a systematic review of the literature, has identified the dual pathways and regulatory mechanisms through which adolescents' academic self-efficacy affects academic achievement. Self-efficacy not only directly drives academic achievement by enhancing learning persistence, goal challenge, and academic engagement but also indirectly promotes academic performance through mediating mechanisms, such as fostering deep learning strategies and self-regulation abilities and regulating positive and negative academic emotions. This process is also closely related to the environment surrounding students, individual thinking patterns, the nature of family support, the type of teacher feedback, and the atmosphere of peer interaction, which jointly regulate the formation, maintenance, and transformation of self-efficacy into actual academic behaviors. At the same time, the study also suggests that the paths and intensities of self-efficacy effects vary significantly across groups, as reflected in dimensions such as gender, age group, and

DOI: 10.54254/2753-7048/2026.LD33432

cultural background. This requires educational practices to go beyond a "one-size-fits-all" support model and shift toward more context-sensitive, individual-adapted intervention strategies.

However, this review also has several limitations: Firstly, it mainly relies on published secondary literature, which may suffer from publication bias and fails to conduct an integrated analysis of the original effect sizes; Secondly, although it involves a preliminary discussion on cultural comparisons, the exploration of the local construction and operational mechanism of self-efficacy in non-Western contexts is still insufficient; Thirdly, most of the included studies are cross-sectional designs, limiting the strength of causal inference. These limitations point out the directions for future research: The meta-analysis method can be used to systematically quantify the effect sizes of different paths and moderating variables, and actively incorporate grey literature to reduce bias; and more longitudinal tracking and intervention experiments are encouraged to clarify the dynamic causal relationships between variables and explore how to effectively design and implement an academic support system centered on self-efficacy in emerging scenarios such as online learning and artificial intelligence education assistance, ultimately promoting the comprehensive growth and sustained success of adolescents.

References

[1] Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. Journal of research on adolescence, 21(1), 225-241. https: //doi.org/10.1111/j.1532-7795.2010.00725.x

[2] Bandura, A. (1997). Self-efficacy: The exercise of control (Vol. 11). Freeman.

[3] Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of educational research, 66(4), 543-578. https: //doi.org/10.3102/00346543066004543

[4] Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. Journal of counseling psychology, 38(1), 30. https: //doi.org/10.1037/0022-0167.38.1.30

[5] Van Dinther, M., Dochy, F., & Segers, M. (2011). Factors affecting students' self-efficacy in higher education. Educational research review, 6(2), 95-108. https: //doi.org/10.1016/j.edurev.2010.10.003

[6] Zhen, R., Liu, R. D., Ding, Y., Wang, J., Liu, Y., & Xu, L. (2017). The mediating roles of academic self-efficacy and academic emotions in the relation between basic psychological needs satisfaction and learning engagement among Chinese adolescent students. Learning and individual differences, 54, 210-216. https: //doi.org/10.1016/j.lindif.2017.01.017

[7] Schunk, D. H., & Ertmer, P. A. (1999). Self-regulatory processes during computer skill acquisition: Goal and self-evaluative influences. Journal of educational psychology, 91(2), 251. https: //psycnet.apa.org/doi/10.1037/0022-0663.91.2.251

[8] Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. American educational research journal, 29(3), 663-676. https: //doi.org/10.3102/00028312029003663

[9] Pekrun, R., & Perry, R. P. (2014). Control-value theory of achievement emotions. In International handbook of emotions in education (pp. 120-141). Routledge.

[10] Goetz, T., Frenzel, A. C., Hall, N. C., & Pekrun, R. (2008). Antecedents of academic emotions: Testing the internal/external frame of reference model for academic enjoyment. Contemporary Educational Psychology, 33(1), 9-33. https: //doi.org/10.1016/j.cedpsych.2006.12.002

[11] Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. Psychological review, 95(2), 256. https: //psycnet.apa.org/doi/10.1037/0033-295X.95.2.256

[12] Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. Contemporary educational psychology, 60, 101832. https: //doi.org/10.1016/j.cedpsych.2019.101832

[13] Bong, M. (2001). Between-and within-domain relations of academic motivation among middle and high school students: self-efficacy, task value, and achievement goals. Journal of educational psychology, 93(1), 23. https: //psycnet.apa.org/doi/10.1037/0022-0663.93.1.23

[14] Elliot, A. J., & McGregor, H. A. (2001). A 2× 2 achievement goal framework. Journal of personality and social psychology, 80(3), 501.

[15] Affuso, G., Zannone, A., Esposito, C., Pannone, M., Miranda, M. C., De Angelis, G., ... & Bacchini, D. (2023). The effects of teacher support, parental monitoring, motivation and self-efficacy on academic performance over time.

DOI: 10.54254/2753-7048/2026.LD33432

European Journal of Psychology of Education, 38(1), 1-23. https: //doi.org/10.1007/s10212-021-00594-6
[16] Fan, W., & Williams, C. M. (2010). The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation. Educational psychology, 30(1), 53-74. https: //doi.org/10.1080/01443410903353302
[17] Britner, S. L., & Pajares, F. (2006). Sources of science self-efficacy beliefs of middle school students. Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching, 43(5), 485-499. https: //doi.org/10.1002/tea.20131
[18] Usher, E. L. (2009). Sources of middle school students' self-efficacy in mathematics: A qualitative investigation. American educational research journal, 46(1), 275-314. https: //doi.org/10.3102/0002831208324517
[19] Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. Contemporary educational psychology, 25(1), 68-81. https: //doi.org/10.1006/ceps.1999.1015
[20] Klassen, R. M. (2004). Optimism and realism: A review of self-efficacy from a cross-cultural perspective. International Journal of Psychology, 39(3), 205-230. https: //doi.org/10.1080/00207590344000330