INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 5, (2025) E-ISSN: 2222-6990

Strong Minds, Strong Grades? A Study of Self-Efficacy and CGPA among Pismp Students

Nurul Amhani Jasan Ahpandi, Mohamed Fadzil Che Din, Liley Afzani Saidi*

Faculty of Defence Studies and Management, National Defence University of Malaysia, Malaysia

Email: 3221612@alfateh.upnm.edu.my, fadzil@upnm.edu.my

*Corresponding Author Email: liley.afzani@upnm.edu.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v15-i5/25453 DOI:10.6007/IJARBSS/v15-i5/25453

Published Date: 14 May 2025

Abstract

Academic achievement, commonly measured by Cumulative Grade Point Average (CGPA), is crucial in determining students' educational and career pathways. Self-efficacy, as a key psychological construct within Bandura's (1997) Social Cognitive Theory, has been consistently linked to academic success. However, limited studies have examined this relationship in the context of Malaysian teacher education. This quantitative study employed a cross-sectional design to investigate the relationship between self-efficacy and academic achievement among 239 students enrolled in the Bachelor of Education Programme (PISMP) at Malaysian Institutes of Teacher Education (IPG). Data were collected through a self-efficacy questionnaire adapted from the Career Decision-Making Self-Efficacy Scale and self-reported CGPA scores. Descriptive and inferential analyses, including Spearman's correlation, were conducted using SPSS version 27. Findings revealed high levels of self-efficacy across all five subconstructs—Self-Assessment, Career Information, Goal Selection, Planning, and Problem Solving. However, Spearman's correlation showed no significant relationship between overall self-efficacy and CGPA ($r = 0.027$, $p = 0.675$), nor with any individual subconstructs. Despite the lack of a significant direct relationship, self-efficacy remains an important psychological asset that may influence other professional outcomes beyond academic grades. Restricted CGPA range and the structured nature of the PISMP programme may have contributed to the non-significant results. Future studies should consider longitudinal or mediated models to better understand the indirect effects of self-efficacy on academic and professional development.

Keywords: Self-Efficacy, Academic Achievement, Teacher Education, CGPA, PISMP Students

Introduction

Academic achievement, typically measured through Cumulative Grade Point Average (CGPA), is a critical determinant of students' future educational opportunities and career prospects.

CGPA serves as an essential indicator reflecting a student's overall academic performance, demonstrating not only cognitive capabilities but also persistence, effort, and adaptability (Richardson, Abraham, & Bond, 2012). Given its significance, understanding the factors influencing academic achievement has been a central focus for educational researchers, educators, and policymakers.

One of the pivotal psychological constructs extensively studied in the educational context is self-efficacy. Self-efficacy, as defined by Bandura (1997), refers to individuals' beliefs in their ability to successfully execute tasks and achieve desired outcomes. It significantly influences students' motivation, learning strategies, perseverance, and ultimately their academic success. Research consistently demonstrates that students with high self-efficacy exhibit greater academic motivation, utilize effective self-regulatory strategies, and persist in the face of difficulties, which collectively enhance academic performance (Schunk & DiBenedetto, 2021).

Within the Malaysian educational landscape, specifically in teacher education programs such as those provided by Malaysian Institutes of Teacher Education (Institut Pendidikan Guru Malaysia- IPGM), understanding the role of self-efficacy is particularly significant. IPG students, especially those enrolled in the Bachelor of Education Programme (Program Ijazah Sarjana Muda Pendidikan - PISMP), as future educators, are required not only to excel academically but also to develop confidence in their teaching abilities, which profoundly impacts their academic and professional trajectories. Despite extensive global research highlighting the critical link between self-efficacy and academic achievement, empirical studies specifically targeting IPG students in Malaysia remain limited.

Recognizing this gap, this study aims to examine the relationship between self-efficacy and academic achievement (CGPA) among PISMP students. The specific objective of this study is to investigate the relationship between self-efficacy and academic achievement among PISMP students.

The finding from this research are expected to contribute valuable insights into the psychological determinants of academic success within teacher education. Furthermore, the outcome of this study may inform educational interventions and policies designed to enhance self-efficacy, academic performance, and professional readiness among future educators.

Literature Review

The relationship between self-efficacy and academic achievement has been extensively documented in educational psychology literature. Self-efficacy, as proposed by Bandura (1997), plays a central role in influencing students' academic behavior, including how they approach learning tasks, handle challenges, and persist in the face of difficulty. Students with high self-efficacy tend to exhibit stronger self-regulation, increased motivation, and greater cognitive engagement, which in turn, positively influence their academic performance.

Recent empirical studies provide compelling evidence that self-efficacy is a robust predictor of academic achievement. For example, Wu et al. (2021) demonstrated through meta-analysis that students with higher academic self-efficacy consistently achieve better academic outcomes across educational levels. This finding aligns with earlier conceptual work

suggesting that self-efficacy enhances academic resilience, persistence, and the use of effective learning strategies, all of which are critical components of academic success.

Niepel et al. (2022) further explained that self-efficacy directly affects academic performance by shaping students' expectations, goal orientations, and emotional regulation during learning tasks. Their findings showed that self-efficacy beliefs are dynamically related to actual performance, particularly in challenging subjects such as mathematics. In a similar vein, Møller et al. (2020) concluded that self-efficacy and academic achievement exhibit reciprocal effects, where prior success strengthens future self-beliefs, and strong self-beliefs contribute to sustained academic growth.

From a theoretical perspective, the reciprocal determinism concept within Social Cognitive Theory explains this bidirectional relationship. According to Bandura (1997), cognitive, behavioral, and environmental influences continuously interact, and self-efficacy serves as the cognitive driver of these interactions. In learning contexts, this means that students who believe in their capabilities are more likely to engage deeply in academic tasks and adopt adaptive learning behaviors, leading to improved academic outcomes (Zimmerman & Schunk, 2011).

Longitudinal data have confirmed that the effects of self-efficacy are not only short-term but also sustainable across time. For instance, Sewasew and Wilhelm (2019) showed that self-efficacy significantly predicted academic growth trajectories among university students, emphasizing its long-lasting impact on academic development. Moreover, Arens et al. (2020) observed that students with higher self-efficacy maintained better academic performance throughout secondary and tertiary education due to consistent self-monitoring and goal-setting behaviors.

Within the Malaysian teacher education context, particularly among PISMP students, cultivating strong self-efficacy beliefs is essential not only for academic performance (CGPA) but also for future teaching efficacy. Although limited, emerging research supports the notion that students who possess higher self-efficacy tend to perform better academically and exhibit greater professional readiness. This reinforces the need to incorporate self-efficacy – enhancing strategies into teacher training programs to optimize both academic and career-related outcomes.

In summary, the relationship between self-efficacy and academic achievement is consistently positive, reciprocal, and predictive of students' academic success. Therefore, understanding and strengthening this relationship is critical in developing targeted interventions aimed at improving CGPA and preparing students for successful educational and professional pathways.

Methodology

This study employed a quantitative, cross-sectional research design, which is suitable for capturing data at a single point in time without manipulating variables. This design enables the examination of the existing relationship between self-efficacy and academic achievement (CGPA) efficiently and objectively. The target population comprised students enrolled in the Bachelor of Education Programme (PISMP) across several campus of Malaysian Institutes of

Teacher Education (IPGs) in Malaysia. Using stratified random sampling, 239 respondents were selected to ensure balanced representation across different academic years. This sample size falls within the range recommended by Cohen, Manion, and Morrison (2018) for correlational and regression analyses. A G*Power analysis confirmed that the statistical power was sufficient (≥ 0.80), ensuring the reliability of the findings (Faul et al., 2007).

Two main instruments were used for data collection. The first was a Self-Efficacy Questionnaire, adapted from the Career Decision-Making Self-Efficacy Scale (CDMSE) by Taylor and Betz (1983), contextualized for Malaysian PISMP students. This 25-item scale includes five subconstructs; Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem-Solving; measured on a 5-point Likert scale. The instrument demonstrated high internal consistency (Cronbach's alpha = 0.974). The adapted CDMSE retained the original five dimensions but modified item phrasing to reflect the Malaysian teacher training context. For example, “occupational information” items were contextualized to align with the structure of teacher placement, practicum expectations, and subject specializations offered by IPGM.

The second instrument measured academic achievement, where participants self-reported their most recent CGPA scores, categorized according to the academic performance classification set by IPGM (Institut Pendidikan Guru Malaysia, 2021). This allowed for consistent and standardized interpretation across respondents.

The data collection process was carried out online via Google Forms after obtaining ethical clearance and informed consent. Confidentiality and voluntary participation were ensured. The data analysis was conducted using SPSS Version 27, where descriptive statistics were first used to profile the respondents. Since CGPA was treated as an ordinal variable, Spearman’s correlation analysis was employed to examine the relationship between self-efficacy and academic achievement. Additionally, linear regression analysis was used to explore the predictive power of self-efficacy on CGPA, identifying the extent to which self-efficacy could explain variations in students’ academic performance.

Results

Descriptive Analysis

Demographic Characteristics of Respondents

This study involved a total of 239 respondents, all of whom are PISMP students enrolled in various teacher education programs at Malaysian Institut Pendidikan Guru (IPGM). The demographic characteristics of the respondents were analyzed based on gender, ethnicity and year of study.

Table 1
Participants' Characteristics (N=239)

Characteristics	Frequency (%)
Gender	
Male	50 (20.9)
Female	189 (79.1)
Ethnicity	
Malay	103 (43.1)
Chinese	39 (16.3)
Indian	4 (1.7)
Sarawak Bumiputera	42 (17.6)
Sabah Bumiputera	51 (21.3)
Year Of Study	
Year 1	50 (20.9)
Year 2	73 (30.5)
Year 3	99(41.4)
Year 4	17 (7.1)

The demographic characteristics of the 239 respondents in this study were analyzed based on gender, ethnicity, and year of study as in **Table 1**. The gender distribution indicates that the majority of the respondents are female, accounting for 189 individuals (79.1%), while 50 respondents (20.9%) are male. This suggests a higher proportion of female students in the sample compared to male students, with females making up nearly four-fifths of the total respondents.

The ethnic composition of the respondents reflects the multicultural diversity of students in Malaysian teacher education institutions. The Malay ethnic group forms the largest proportion, with 103 students (43.1%), followed by 51 students (21.3%) from the Sabah Bumiputera group and 42 students (17.6%) from the Sarawak Bumiputera group. Meanwhile, 39 respondents (16.3%) identify as Chinese, and 4 respondents (1.7%) are Indian. The cumulative percentage confirms that all respondents belong to one of the specified ethnic categories, providing a broad representation of the ethnic groups typically found in teacher education programs in Malaysia.

In terms of year of study, the respondents are distributed across different levels of their PISMP program. The largest group consists of Year 3 students, totaling 99 individuals (41.4%). This is followed by Year 2 students, with 73 respondents (30.5%), and Year 1 students, comprising 50 individuals (20.9%). The smallest proportion of respondents comes from Year 4 students, with only 17 individuals (7.1%). The data show that students from all four academic years participated in this study, with the majority coming from the middle years of the program.

Overall, the demographic analysis indicates that the respondents are predominantly female, with a diverse ethnic representation and a higher concentration of students in Year 2 and Year 3. This descriptive data provides an overview of the sample composition in this study, offering a contextual background for further analysis.

Level of self-efficacy among PISMP Students

Table 2
Descriptive Statistics for Self-Efficacy and Subconstructs

	Mean	Median	Mode	S.D.
Self-Assessment	4.09	4.00	4	0.871
Career Information	4.02	4.00	4	0.815
Goal Selection	4.08	4.00	4	0.798
Planning	3.98	4.00	4	0.870
Problem Solving	3.97	4.00	4	0.843
Self Efficacy	4.03	4.03	4	0.800

Self-efficacy in this study is measured through five subconstructs: Self-Assessment, Career Information, Goal Selection, Planning, and Problem Solving. The overall self-efficacy score represents the combined measurement of these components. The descriptive statistics provide insights into the mean, median, mode and standard deviation (S.D.) of self-efficacy scores.

Based on **Table 2**, the overall mean self-efficacy score is 4.03, with a median of 4.03 and a mode of 4, indicating that most responses are centered around this value. The standard deviation of 0.800 suggests a moderate dispersion of scores, while the minimum and maximum values range from 1 to 5, reflecting variations in respondents' self-efficacy perceptions.

Among the five subconstructs, Self-Assessment recorded the highest mean (4.09) with a standard deviation of 0.871, followed closely by Goal Selection (Mean = 4.08, S.D. = 0.798) and Career Information (Mean = 4.02, S.D. = 0.815). Meanwhile, Planning had the lowest mean score (3.98, S.D. = 0.870), indicating that respondents rated their self-efficacy in planning slightly lower than in other domains.

Overall, respondents demonstrated high levels of self-efficacy, as all subconstructs yielded mean scores above 3.90. The median and mode values consistently at 4.00 suggest that the majority of participants rated their self-efficacy positively. The standard deviation values, ranging between 0.798 and 0.871, indicate moderate variation in responses, suggesting some differences in self-efficacy perceptions across participants.

Distribution of Academic Achievement (CGPA)
Table 3
Participants' Academic Achievement (N=239)

	Frequency	*Percent*
Academic Achievement (CGPA)		
Second Class Upper	141	59
First Class	98	41

The academic achievement of respondents is classified based on the Institut Pendidikan Guru Malaysia (IPGM) degree classification system. The results in **Table 3** indicate that 141 students (59%) achieved a Second Class Upper classification, corresponding to a CGPA range of 3.00 – 3.74, while 98 students (41%) attained First Class honors, which corresponds to a CGPA range of 3.75 – 4.00.

Based on the IPGM grading system, no respondents fell into the Second Class Lower (CGPA 2.00 – 2.99) or Fail category (CGPA 0.00 – 1.99). This suggests that all students in the sample have maintained a CGPA above 3.00, reflecting strong academic performance among PISMP students.

The distribution of CGPA serves as a benchmark for analyzing academic achievement and provides context for examining the relationship between self-efficacy and academic performance in this study.

Inferential Analysis

Relationship between Self-Efficacy and CGPA

Table 4

Spearman Correlation Between Self-Efficacy And CGPA

	Academic Achievement (CGPA)	
Self Efficacy	r	p value
	0.027	0.675*

**Spearman Correlation*

A Spearman's correlation analysis based on **Table 4** was performed to examine the relationship between self-efficacy and academic achievement (CGPA) among PISMP students. The results revealed that there is no statistically significant correlation between self-efficacy and CGPA ($r = 0.027$, $p = 0.675$). This indicates that self-efficacy does not have a meaningful direct association with students' academic performance in this study.

The correlation coefficient ($r = 0.027$) suggests a very weak positive relationship between self-efficacy and CGPA. However, the p-value of 0.675 is greater than 0.05, confirming that this relationship is not statistically significant. Based on Cohen's (1988) interpretation of correlation strength, where values between 0.10 and 0.29 indicate weak relationships, 0.30 to 0.49 indicate moderate relationships, and values above 0.50 indicate strong relationships, the observed correlation in this study falls below 0.10, making it negligible.

Table 5

Correlation of Self-Efficacy Subconstructs and CGPA

	Academic Achievement (CGPA)	
	r-value	p-value
Self-Assessment	0.022	0.738
Career Information	0.020	0.761
Goal Selection	0.032	0.620
Planning	0.037	0.572
Problem Solving	0.036	0.575

To examine the relationship between self-efficacy and academic achievement (CGPA) among PISMP students, a Spearman's correlation analysis was performed due to the ordinal nature of CGPA data. The analysis as in **Table 5** revealed that the overall correlation between self-efficacy and CGPA was very weak and statistically non-significant ($r = 0.027$, $p = 0.675$). Therefore, the null hypothesis was retained, indicating that there is no significant relationship between self-efficacy and academic performance in this sample.

Further analysis was conducted to assess the relationship between the five subconstructs of self-efficacy—Self-Assessment, Career Information, Goal Selection, Planning, and Problem Solving—and CGPA. As shown in Table 5, none of the subconstructs demonstrated a significant correlation with CGPA, with all p-values exceeding the 0.05 threshold. Specifically, the correlation coefficients were as follows: Self-Assessment ($r = 0.022$, $p = 0.738$), Career Information ($r = 0.020$, $p = 0.761$), Goal Selection ($r = 0.032$, $p = 0.620$), Planning ($r = 0.037$, $p = 0.572$), and Problem Solving ($r = 0.036$, $p = 0.575$). These values reflect extremely weak and statistically insignificant associations.

The findings suggest that the self-efficacy subconstructs do not have a direct influence on academic achievement, as measured by CGPA. While self-efficacy is widely recognized for its role in fostering motivation and goal-setting behaviour, its direct impact on academic outcomes may be minimal. It is possible that other variables — such as learning strategies, study habits, psychological resilience, or institutional support — serve as mediating or moderating factors. Hence, future research is encouraged to explore these indirect pathways to gain a more comprehensive understanding of how self-efficacy may contribute to academic success.

Discussion and Conclusion

The present study found no statistically significant relationship between self-efficacy and academic achievement (CGPA) among PISMP students ($r = 0.027$, $p = 0.675$), with similarly weak and non-significant associations across all five subconstructs of self-efficacy. These findings appear to diverge from a substantial body of research that consistently reports a positive link between self-efficacy and academic success (Perinelli & Pisanu, 2022, Wu et al., 2021; Niepel et al., 2021; Møller et al., 2020; Toni Honicke & Jaclyn Broadbent, 2016). Theoretically grounded in Bandura's (1997) Social Cognitive Theory, self-efficacy is believed to enhance students' motivation, goal-setting, and persistence, all of which are crucial for academic achievement (Zimmerman & Schunk, 2011). However, the lack of significant findings in this study suggests that the influence of self-efficacy on academic outcomes may be more complex, possibly involving indirect or moderated pathways.

One plausible explanation is the restricted CGPA range within the sample—all respondents had a CGPA above 3.00—which may have limited the variability necessary to detect significant correlations (Komarraju et al., 2013). Additionally, CGPA reflects cumulative academic performance over time and may not fully capture the task-specific, short-term effects of self-efficacy, which are often more evident in specific subjects or assessments (Bandura, 1997; Niepel et al., 2021). The structured and supportive nature of the PISMP programme may further reduce the impact of individual differences in psychological traits, such as self-efficacy, on academic performance (Klassen & Usher, 2010).

Despite the absence of a direct link to CGPA, the consistently high self-efficacy scores among PISMP students are noteworthy. These beliefs are likely to contribute to other professional competencies such as teaching confidence, instructional adaptability, and practicum readiness — dimensions that may not be reflected in academic grades alone (Tschannen-Moran & Hoy, 2001; Arens et al., 2020). In line with recent findings by Sewasew and Wilhelm (2019), self-efficacy remains a stable predictor of long-term academic and professional development, underscoring its broader relevance beyond immediate academic outcomes. These findings may inform policy enhancements within Malaysia's teacher education framework, particularly by encouraging the incorporation of structured self-efficacy development modules in IPGM's academic and practicum syllabi. Such strategies may better prepare pre-service teachers to manage the demands of the profession beyond academic performance.

In conclusion, although self-efficacy did not significantly predict CGPA in this study, it remains a vital psychological resource for PISMP students. Its contribution to motivation, resilience, and professional readiness suggests that teacher education programmes should continue to cultivate self-efficacy through reflective practices, feedback-rich environments, and scaffolded teaching experiences. Future research should explore the mediating or moderating variables—such as academic resilience, study strategies, or emotional regulation—that may influence the relationship between self-efficacy and academic success (Schunk & DiBenedetto, 2020; Putwain et al., 2013). A longitudinal or mixed-methods approach may offer deeper insights into how self-efficacy evolves across different phases of teacher training and contributes to holistic educator development.

This study offers a valuable theoretical contribution by questioning the commonly accepted direct association between self-efficacy and academic achievement within Bandura's Social Cognitive Theory. The non-significant findings prompt a reconsideration of self-efficacy's role, suggesting the potential influence of indirect or contextual factors that mediate its impact on academic outcomes. In the Malaysian context, particularly within structured teacher training programmes like PISMP, this research underscores the importance of viewing self-efficacy beyond academic indicators. It highlights its relevance in shaping future educators' confidence, professional adaptability, and readiness for teaching. These insights extend current knowledge and support the integration of self-efficacy-enhancing strategies in teacher education policies and instructional practices tailored to the local educational landscape.

Acknowledgments
The authors would like to express sincere appreciation to the Malaysian Institute of Teacher Education (IPGM) and all participating students for their cooperation in this study.

References

Arens, A. K., Jansen, M., Preckel, F., Schmidt, I., & Brunner, M. (2020). *The structure of academic self-concept: A methodological review and empirical illustration of central models*. Review of Educational Research, 91(1), 34–72. https://doi.org/10.3102/0034654320972186

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and Company.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education (8th ed.)*. Routledge.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). *G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences.* Behavior Research Methods, 39(2), 175–191. https://doi.org/10.3758/BF03193146

Honicke, T., & Broadbent, J. (2016). *The influence of academic self-efficacy on academic performance: A systematic review*. Educational Research Review, 17, 63–84. https://doi.org/10.1016/j.edurev.2015.11.002

Institut Pendidikan Guru Malaysia. (2021). *Guidelines and conditions for the awarding of certificate/diploma/degree at the Institute of Teacher Education (Updated August 2021; Revised January 2022)*. https://ipgm.moe.edu.my/images/terbitan/bpanduan/p_anugerah.pdf

Klassen, R. M., & Usher, E. L. (2010). *Self-efficacy in educational settings: Recent research and emerging directions*. In T. Urdan & S. A. Karabenick (Eds.), The decade ahead: Applications and contexts of motivation and achievement (Vol. 16A, pp. 1–33). Emerald.

Komarraju, M., Ramsey, A., & Rinella, V. (2013). *Cognitive and non-cognitive predictors of college readiness and performance: Role of academic discipline*. Learning and Individual Differences, 24, 103–109. https://doi.org/10.1016/j.lindif.2012.12.007

Möller, J., Zitzmann, S., Helm, F., Machts, N., & Wolff, F. (2020). *A meta-analysis of relations between achievement and self-concept*. Review of Educational Research, 90(3), 376–419. https://doi.org/10.3102/0034654320919354

Niepel, C., Marsh, H. W., Guo, J., Pekrun, R., & Möller, J. (2022). *Revealing dynamic relations between mathematics self-concept and perceived achievement from lesson to lesson: An experience-sampling study*. Journal of Educational Psychology, 114(6), 1380–1393. https://doi.org/10.1037/edu0000716

Perinelli, E., & Pisanu, F. (2022). *Academic self-concept change in junior high school: A longitudinal perspective.* Contemporary Educational Psychology, 68, 102040. https://doi.org/10.1016/j.cedpsych.2022.102071

Putwain, D. W., Sander, P., & Larkin, D. (2013). *Academic self-efficacy in study-related skills and behaviors: Relations with learning-related emotions and academic success*. Educational Psychology, 83(4), 633-650. https://doi.org/10.1111/j.2044-8279.2012.02084.x

Richardson, M., Abraham, C., & Bond, R. (2012). *Psychological correlates of university students' academic performance: A systematic review and meta-analysis.* Psychological Bulletin, 138(2), 353–387. https://doi.org/10.1037/a0026838

Schunk, D. H., & DiBenedetto, M. K. (2021). *Self-efficacy and human motivation*. In G. C. Roberts & D. Treasure (Eds.), Advances in Motivation in Sport and Exercise (4th ed., pp. 153–179). Human Kinetics. https://doi.org/10.1016/bs.adms.2020.10.001

Sewasew, D., & Wilhelm, O. (2019). *The developmental interplay of academic self-concept and achievement*. Contemporary Educational Psychology, 58, 75–91. https://www.sciencedirect.com/science/article/abs/pii/S0361476X18303205

Taylor, K. M., & Betz, N. E. (1983). *Applications of self-efficacy theory to the understanding and treatment of career indecision*. Journal of Vocational Behavior, 22(1), 63–81. https://doi.org/10.1016/0001-8791(83)90006-4

Tschannen-Moran, M., & Hoy, A. W. (2001). *Teacher efficacy: Capturing an elusive construct.* Teaching and Teacher Education, 17(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Wu, H., Guo, Y., & Yang, Y. (2021). *A meta-analysis of the longitudinal relationship between academic self-concept and academic achievement.* Educational Psychology Review, 33(4), 1453–1479. https://link.springer.com/article/10.1007/s10648-021-09600-1

Zimmerman, B. J. (2000). Self-efficacy: *An essential motive to learn*. Contemporary Educational Psychology, 25(1), 82–91. https://doi.org/10.1006/ceps.1999.1016