

The Impact of Student Engagement on Perceived Academic Achievement among Students in China

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Abstract

The purpose of this research is to examine the impact of students' engagement, namely cognitive, emotional and behavioural engagement, on students' academic achievement in China. A quantitative cross-sectional survey was employed on 257 university students in China. Descriptive analysis was used to analyse the level of students' engagement, and multiple regression analysis was used to examine the specific impact of students' engagement on students' academic achievement. The result revealed that behavioural engagement recorded the highest mean score ($M = 4.24$, $SD = 0.607$), followed closely by emotional engagement ($M = 4.22$, $SD = 0.591$) and cognitive engagement ($M = 4.22$, $SD = 0.579$). In terms of the impact, behavioural engagement was a significant positive predictor ($\beta = 0.337$, $p < .001$), indicating that higher levels of behavioural engagement are associated with higher perceived academic achievement. Emotional engagement was also a significant predictor ($\beta = 0.154$, $p = .026$), although its effect was weaker compared to the other variables. Cognitive engagement emerged as the strongest predictor ($\beta = 0.339$, $p < .001$), suggesting that students who are more cognitively engaged tend to report higher levels of academic achievement. As cognitive engagement was found to be the most significant predictor, pedagogical practice is recommended to emphasise more designing tasks requiring deep learning strategies and the comprehension of complex ideas in order to support students' academic achievement in China.

Keywords: University students, students mastery, students involvement

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INTRODUCTION

Academic achievement refers to the measurable totality of a student's learning outcomes, typically reflected through grades, scores, grade point average, standardized test results, or completion of recognized educational benchmarks such as diplomas and degrees (Das et al., 2025). While narrower definitions focus on performance metrics like GPA and Cumulative GPA, broader definitions position academic achievement at the core of educational growth, encompassing mastery of subject matter, skill development, effort, time management, and discipline (Ahmar, 2013; Das et al., 2025). Research increasingly confirms that students' academic achievement is a central predictor of many important life outcomes, including educational attainment, retention, post-school choices, work and career satisfaction, long-run earnings, and work performance (Meyer et al., 2023). Meta-analytic evidence further demonstrates that earlier academic performance reliably predicts not only

future academic results but also psychological outcomes such as self-efficacy, achievement motivation, self-esteem, persistence, optimism, and commitment (Salgado et al., 2022). This makes academic achievement one of the few constructs that functions as a valid predictor across both the educational and organizational domains bridging how students perform in school and how they perform later in their careers (Salgado et al., 2022).

Examining the predictor of students' academic achievement is importance, particularly in China. Firstly, variable may be distinct and contextual among Chinese students. research indicate that Chinese education system is unique that shaped by millennia of cultural tradition, a centralized examination architecture, and reform-era policy shifts that together produce outcomes not fully captured by Western frameworks (Chen, 2023; Li & Mohammad, 2025; Zhu, 2022). Research over decades has established that Chinese students exhibit distinctive features in academic settings that set them apart from other international cohorts (Alfaifi et al., 2020; Li et al., 2009). Therefore, predictor of students academic achievement may be unique in this context. Other than that, academic achievement encompasses more than narrow performance metrics. It includes discipline as an antecedent to academic attainment, effort as a primary determinant of learning success, time management as a critical skill for sustained study, subjects mastery as the ultimate goal of learning and support systems that enable the educational journey (Ahmar, 2013; Das et al., 2025). The wide aspect covering the students academic achievement indicate that the research should be contextual, focusing on particular group that intended to measure. In Chinese students context, the development of learning self-efficacy was shaped by the amalgamation of traditional instructional techniques with contemporary learner-focused methodologies, alongside peer relationships and institutional support (Tao & Yu, 2024). Therefore, there are varieties of factors that may predict the Chinese students achievement, finding the best one will be significant for policy maker in conceptualizing proper intervention.

One of predictor need to be considered is the students engagement. Student engagement is widely defined as a multifaceted concept describing what and how students think, act, and feel in a classroom setting, typically comprising three dimensions of Fredricks framework namely of behavioural, emotional and cognitive engagement (Hong et al., 2020; Liu et al., 2023; Wang et al., 2023). Zhu & Arnold (2013) noted that China's higher education system has experienced a profound process of restructuring and transformation from elite to mass higher education in the past decades, leaving college students struggling with an increasingly disconnected learning experience caused by a more competitive learning environment. The implication is that as Chinese universities expand, engagement patterns become both more diverse and more consequential for outcome variation. Other than that, Chen & Huang (2022) found that past study has shown that college students' engagement in learning has a positive effect on learning outcomes, meaning more engagement in learning corresponds to better learning gains and school satisfaction, as well as lower negative affect and undesirable behaviors. Teng & Wang, (2021) further assert that affective engagement can lead to positive interaction with teachers and peers, enjoyment, positive attitude about learning, interest, motivation, and enthusiasm which can possibly influence students academic achievement.

Given the possible role of students engagement, existing research over the past decade has firmly established student engagement as a multidimensional construct with three core dimensions namely behavioral, emotional, and cognitive (Hong et al., 2020; Liu et al., 2023; She et al., 2021; Wang et al., 2023). The literature on Chinese students specifically has produced the following established findings. First, engagement was found to be the mediator between self-efficacy and achievement (Luo et al., 2023; Meng & Zhang, 2023; Zhang, 2025) and the relationship between emotions and EFL achievement (Wang et al., 2023). Other than that, five institutional engagement factors have been identified in Chinese universities namely Effective Teaching Practices, Personal Development, Supportive Campus Environment, Collaborative & Integrative Learning, And Quality Of Interactions (Zhang, 2019). Furthermore, engagement research in China began comparatively late, with Zhu & Arnold's 2013 Beijing study (18,607 students from 55 colleges) being one of the earliest comprehensive analyses (Zhu & Arnold, 2013), and engagement studies have since expanded across various sample sizes and institutional contexts.

Despite this progress, several important gaps remain unresolved that mirror well-documented global patterns and gaps that are uniquely relevant to the Chinese higher-education context. For example, Galappaththi et al.'s (2020) critical review of the global engagement-achievement literature identified a repeatedly flagged gap that the sample is being limited to just one university/school/institute. This pattern is clearly visible in Chinese engagement research, where many foundational studies focused on single institutions or single provinces. The same review flagged that most research have done using a single subject result, which would be impractical (Galappaththi et al., 2020). Furthermore, The Chinese engagement literature has insufficiently examined engagement among several key student sub-populations such as Ethnic minority students, (Li & Mohammad, 2025), Rural and low-SES students versus urban and high-SES students, First-Generation University Students, Students With Disabilities Or Learning Difficulties, Female Students In STEM Vs Male Students In Humanities (Jiang Et Al., 2025), Master's And Phd Students Beyond Zhang's 214-Participant Study (Zhang, 2025). This sub-group gap limits the generalizability and equity-sensitivity of engagement-based interventions in the Chinese context. Given this limitation, the current research intend provide evidence on the significant of students engagement on students academic achievement in heterogenous Chinese students context, by involving universities with divers students characteristics.

METHODS

The current research is quantitative cross sectional survey design measuring the relation of students engagement on students academic achievement in China. A cross-sectional research design defined as a type of observational study in which the investigator measures the outcome and the exposures in the study participants at the same time (Setia, 2016). This research design is relevant as variable of engagement, motivation, self-efficacy, emotions, and achievement can all be measured within one survey wave (Liu et al., 2023; Luo et al., 2023; Meng & Zhang, 2023), enabling a comprehensive description of how these variables relate at one specific point in time. Other than that existing cross-sectional engagement surveys are yielding strong, reproduced variance explanations for achievement such as 65.3% of variance explained by combined engagement dimensions in Chinese college English education (Liu et al., 2023), and 51.4% of variance explained by self-efficacy + engagement for Chinese master's students (Zhang, 2025)

The data in this research was collected through instrument developed based on existing theories. Students engagement instrument developed based on the multidimensional theory of student engagement proposed by Fredricks, Blumenfeld, and Paris (2004), which conceptualizes engagement as comprising behavioural, emotional, and cognitive dimensions. Behavioural engagement items measure students' participation in academic activities, such as attending classes, paying attention, and completing assignments, reflecting observable effort and involvement. Emotional engagement items capture students' affective responses, including interest, enjoyment, motivation, and sense of connection to learning, which are grounded in affective and motivation theories (Pekrun, 2006). Cognitive engagement items assess students' investment in learning through deep understanding, critical thinking, and the use of learning strategies, consistent with self-regulated learning theory (Pintrich, 2004; Zimmerman, 2002). Overall, the instrument was developed by aligning items with established theoretical constructs to ensure a comprehensive and valid measure of student engagement.

The instrument used to measure students' perceived academic achievement was developed based on established theories of social comparison, self-efficacy, and achievement goal theory. The dimension of relative performance (peer comparison) is grounded in Social Comparison Theory, which suggests that students evaluate their academic ability by comparing themselves with peers, influencing both performance and self-perception (Wehrens et al., 2009). The performance satisfaction dimension reflects students' affective evaluation of their academic outcomes and is supported by research indicating that satisfaction with performance is closely linked to motivation and future achievement (Lane & Gibbons, 2007). Meanwhile, the subjective mastery dimension is based on self-efficacy and mastery goal theories, emphasizing students' perceived competence,

understanding, and ability to apply knowledge, which are critical indicators of academic success. Overall, the instrument integrates cognitive, comparative, and affective perspectives to provide a comprehensive measure of students' perceived academic achievement.

The data in this research analysed through several procedure in Jamovi application. First, descriptive analysis such as mean and standard deviation employed to examine the level of students engagement and perceived academic achievement. Secondly multiple regression analysis employed to examine the impact of students engagement on students academic achievement. Multiple Linear Regression is one of the most widely used statistical techniques in education and behavioral sciences for examining how one continuous dependent variable is predicted by two or more independent variables simultaneously (Ruan, 2024; Jankovic, 2022). Unlike simple correlation or simple regression, MLR accommodates the multidimensional nature of student engagement namely behavioral, emotional, and cognitive dimensions, which are simultaneously present in any research design (Gebregergis et al., 2023; Hong et al., 2020). Wu et al. (2023) note that when examining engagement with MLR, these variables have a linear relationship which necessitates the simultaneous consideration of multicollinearity. Therefore, the use of this analysis is robust and sufficient.

In the current research, MLR used to evaluate the predictive power of the three dimensions of student engagement namely emotional, cognitive, and behavioral engagement on students' academic achievement (Liu et al., 2023). Before conducting the regression analysis, several statistical assumptions were tested to ensure the validity of the results. First, linearity was assessed to confirm that there is a linear relationship between the independent variables and the dependent variable, as required for regression analysis (Hair et al., 2019). Second, the presence of multicollinearity among the predictors was examined using Variance Inflation Factor (VIF) and tolerance values. According to Hair et al. (2019), VIF values should be less than 10 and tolerance values should be greater than 0.10 to indicate that multicollinearity is not a concern.

Third, outliers were evaluated using Mahalanobis distance, which identifies multivariate outliers in the dataset. A case is considered a potential outlier if its Mahalanobis distance exceeds the critical chi-square value at $p < .001$ based on the number of predictors (Tabachnick & Fidell, 2019). Fourth, the assumption of normality of residuals was considered, where residuals are expected to be approximately normally distributed to ensure accurate estimation of parameters (Field, 2018). Additionally, homoscedasticity was assessed to confirm that the variance of residuals is constant across all levels of the predicted values (Pallant, 2020). The strength and explanatory power of the regression model were evaluated using the coefficient of determination (R^2), which indicates the proportion of variance in the dependent variable explained by the independent variables. Higher R^2 values represent better model fit (Hair et al., 2019). The statistical significance of the overall model and individual predictors was determined using p-values, with a threshold of $p < .05$ indicating statistical significance (Field, 2018). Furthermore, standardized beta coefficients (β) were used to compare the relative importance of each independent variable in predicting the dependent variable.

FINDING AND DISCUSSIONS

Descriptive Analysis

Descriptive analysis was conducted to examine the level of students' engagement across three dimensions namely behavioral, emotional, and cognitive engagement. The result of students engagement level can be seen in table 1. The findings indicate that students demonstrated a high level of engagement in all dimensions, as reflected by the mean scores exceeding 4.00. For behavioral engagement, the mean scores ranged from 4.15 to 4.29, suggesting that students actively participated in learning activities. The highest mean was observed for the item "I stay focused during learning activities" ($M = 4.29$, $SD = 0.895$), followed closely by "I attend classes regularly" ($M = 4.28$, $SD = 0.805$). These results indicate strong student involvement in classroom participation and task completion.

In terms of emotional engagement, students also reported high levels of positive learning-related emotions, with mean scores ranging from 4.10 to 4.31. The highest mean was recorded for “I feel happy when I understand new concepts” ($M = 4.31$, $SD = 0.846$), indicating that students experienced positive emotional responses toward learning. However, the lowest mean within this dimension was found for “I feel connected to what I am learning” ($M = 4.10$, $SD = 0.860$), suggesting slightly lower emotional attachment compared to other aspects. For cognitive engagement, the results similarly revealed high engagement, with mean scores ranging from 4.19 to 4.26. Students reported strong efforts in deep learning strategies, particularly for items such as “I use different strategies to help me understand difficult topics” ($M = 4.26$, $SD = 0.859$) and “I review and reflect on what I have learned” ($M = 4.26$, $SD = 0.827$). This indicates that students are actively engaged in higher-order thinking processes and self-regulated learning.

Table 1. Descriptive Result of Students Engagement

Dimension	Items	Mean	Std
Behavioral Engagement	I pay attention during lectures and class activities	4.15	0.868
	I actively participate in class discussions	4.22	0.862
	I complete my assignments on time	4.21	0.858
	I put effort into my academic tasks even when they are difficult	4.26	0.824
	I stay focused during learning activities	4.29	0.895
	I attend classes regularly	4.28	0.805
Emotional Engagement	I feel interested in the topics taught in my courses	4.24	0.891
	I enjoy participating in learning activities	4.29	0.845
	I feel motivated to learn in my classes	4.18	0.841
	I feel happy when I understand new concepts.	4.31	0.846
	I feel connected to what I am learning	4.10	0.860
Cognitive Engagement	I try to understand the material deeply, not just memorize it.	4.19	0.858
	I think critically about what I learn in class	4.21	0.849
	I make an effort to connect new knowledge with what I already know	4.20	0.851
	I use different strategies to help me understand difficult topics	4.26	0.859
	I review and reflect on what I have learned	4.26	0.827
	I try to solve challenging problems even when they are complex	4.20	0.837

Descriptive analysis was also used to reveal the level of students engagement based on dimension. The result showed in table 2. Overall, students' engagement levels were high across all dimensions. In term of students engagement, behavioural engagement recorded the highest mean score ($M = 4.24$, $SD = 0.607$), followed closely by emotional engagement ($M = 4.22$, $SD = 0.591$) and cognitive engagement ($M = 4.22$, $SD = 0.579$).

Table 2. Descriptive Analysis Perdimension

Instrument	Dimension	Mean	Std	Alpha
Students engagement	Behavioural	4.24	0.607	0.805
	Emotional	4.22	0.591	0.725
	Cognitive	4.22	0.579	0.773

Normality Test

Before the hypothesis testing, it is importance to examine the normality. It was assessed using skewness, kurtosis, and the Shapiro–Wilk test. The results are presented in Table 3. All dimensions

of students' engagement and perceived academic achievement showed negative skewness, ranging from -1.23 to -1.58, indicating that the data were moderately skewed to the left. The kurtosis values ranged from 2.16 to 4.93, suggesting a tendency toward leptokurtic distributions (more peaked than normal). Furthermore, the Shapiro–Wilk test results were significant ($p < .001$) for all variables, indicating that the data significantly deviate from a normal distribution.

Although the Shapiro–Wilk test indicates non-normality, the decision on whether to use parametric or non-parametric tests should consider additional factors. Skewness values are within acceptable range (± 2), Kurtosis values are within acceptable range (± 7). Based on these conditions, the data can be considered approximately normal. Therefore, parametric test will be used to examine the relation between the variable.

Table 3. Normality Test

Instrument	Dimension	Skewness	Kurtosis	Shapiro-Wilk
Students engagement	Behavioural	-1.47	3.60	<.001
	Emotional	-1.46	4.01	<.001
	Cognitive	-1.58	4.93	<.001
Perceived academic achievement	Relative Performance (Peer Comparison)	-1.23	2.16	<.001
	Performance Satisfaction	-1.25	2.99	<.001
	Subjective Mastery	-1.43	3.25	<.001

Multiple linier Regression Analysis

A multiple regression analysis was conducted to examine the impact of behavioural, emotional, and cognitive engagement on students' perceived academic achievement. The results showed in table 4 indicated that the overall model was strong, with a correlation coefficient of $R = 0.759$ and an R^2 value of 0.577, suggesting that approximately 57.7% of the variance in perceived academic achievement can be explained by the three dimensions of student engagement. This demonstrates that the model has good explanatory power.

Table 4. Model Fit Summary

Model	R	R^2
1	0.759	0.577

Further analysis of the regression coefficients revealed that all three predictors significantly contributed to the model. Based on the result showed in table 5, behavioural engagement was a significant positive predictor ($\beta = 0.337$, $p < .001$), indicating that higher levels of behavioural engagement are associated with higher perceived academic achievement. Emotional engagement was also a significant predictor ($\beta = 0.154$, $p = .026$), although its effect was weaker compared to the other variables. Cognitive engagement emerged as the strongest predictor ($\beta = 0.339$, $p < .001$), suggesting that students who are more cognitively engaged tend to report higher levels of academic achievement.

Table 5. Model Coefficient

Predictor	Estimate	SE	95% Confidence Interval		t	p	Stand.Estimate
			Lower	Upper			
Intercept	0.655	0.1900	0.2810	1.029	3.45	<.001	
Behavioural Engagement	0.327	0.0634	0.2018	0.451	5.15	<.001	0.337
Emotional Engagement	0.153	0.0686	0.0182	0.289	2.23	0.026	0.154
Cognitive Engagement	0.344	0.0713	0.2034	0.484	4.82	<.001	0.339

In terms of assumption testing showed in table 6, the collinearity statistics showed that there were no multicollinearity issues among the predictors, as the VIF values ranged from 2.56 to 2.95 and tolerance values ranged from 0.339 to 0.391, all within acceptable thresholds. Additionally, the Mahalanobis distance test identified a few potential outliers (cases 11, 68, 69, and 139), but these were not considered extreme enough to significantly influence the overall results of the model. Overall, the findings indicate that student engagement is a significant predictor of perceived academic achievement, with cognitive and behavioural engagement playing the most influential roles, while emotional engagement contributes to a lesser but still statistically significant extent.

DISCUSSIONS

The current research aim to examine the impact of students engagement on students academic achievement in China. The result revealed that students engagement was high in all dimension with behavioural engagement was found to be the highest within students, followed by emotional and cognitive engagement. In China, there was cultural values adopted as the living principle and learning guidance namely Confucian heritage culture. This value drive Chinese students behavior and action which may be the reason on the high values of students behavioural engagement. The Confucian emphasis on effort, perseverance, and behavioral compliance is among the strongest documented cultural moderators of academic behavior (Li et al., 2009). this value influence the way students act and behave in the school. For example, seat selection patterns among Chinese undergraduates demonstrate cultural moderation of behavior (Lu et al., 2024). It indicate that systematic behavioral patterns among Chinese students as the result of culturally-rooted participation styles. Furthermore, chinese students are likely to express engagement primarily through behavioral channels because the culture explicitly trains and rewards behavioral compliance, persistence, and effort-directed activity (Jin, 2023; Kehan et al., 2024).

Even behavioural engagement was the highest, multiple regression analysis revealed that the most significant predictor for students academic achievement was cognitive engagement, followed by behavioural engagement, and emotional engagement. The significant of cognitive engagement might be caused by the characteristic of Chinese education that emphasise for deep learning for high stake exam. Chinese academic success is primarily determined by standardized entrance exams such as Gaokao that reward the deep understanding and higher-order thinking associated with cognitive engagement (Li et al., 2017). While surface-level behaviors like attendance are necessary, they are insufficient for the complex problem-solving required in these assessments (Liu et al., 2023). In this case, cognitive engagement encompasses a student's investment in mastery and their use of metacognitive strategies to monitor their own learning (Teng & Wang, 2021). Studies in Chinese secondary schools demonstrate that these cognitive processes significantly influence achievement across various subjects (Yangyang et al., 2025).

This finding is significant to influence the pedagogical practice in chinese education. Because cognitive engagement is the strongest predictor, instructional design should deliberately cultivate these processes (Wang, 2024; Xu et al., 2023). In this case, this finding recommend designing tasks requiring deep learning strategies and the comprehension of complex ideas (Arwin et al., 2022; Wu et al., 2023). This implies that cognitive engagement must be intentionally scaffolded when teaching diverges from traditional rote paradigms (Nengsih et al., 2022; Wang, 2024). It can be done by leveraging the technologies with tools like computer vision and adaptive learning systems can sustain cognitive engagement by responding to in-the-moment indicators such as attention (Sarte et al., 2021; Wu et al., 2023). Likewise, EFL MOOCs in Chinese universities reveal that engagement markers in recorded lectures have measurable implications for instructional design, implying that online and blended platforms should be redesigned to provoke deeper cognitive tasks, not just passive viewing (Matt et al., 2022; Guo & Ibrahim, 2023).

Furthermore, Studies on international students in less-resourced Chinese universities reveal that cultural adaptation, self-efficacy, teacher behavioral support, and peer behavioral support collectively explained over 60% of variance in students' overall engagement even at non-double-

first-class universities (Zainil et al., 2024; Qu & Bhatta, 2025). Engagement interventions can therefore compensate for institutional prestige gaps, making engagement a key lever for equitable outcomes. In this case, policymakers should allocate resources not just to infrastructure or teacher numbers, but specifically to engagement-building practices in under-resourced regions, because the engagement–achievement relationship itself is a pathway through which equity can be advanced (Liu, 2025; Zong et al., 2024).

Longitudinal research on adolescent engagement in Chinese schools demonstrates that these types of school engagement are not static and do change over time, and that the effects of school engagement varied with respect to the type of engagement (Wang & Eccles, 2011; Handrianto et al., 2024). This means interventions must be developmentally calibrated—early-stage efforts should plant metacognitive habits adapted appropriately for the grade level, while later stages emphasize higher-order self-regulation. Because engagement is dynamic and multidimensional, schools need continuous monitoring systems for each dimension separately—one diagnostic signal cannot stand in for the others. The specialized-purpose hypothesis reinforces that cognitive engagement did not show a specialized relation with any outcome, suggesting that cognitive engagement's predictive power comes through its interactions with behavioral and emotional engagement, not from a standalone effect (Solfema et al., 2024; Reeve et al., 2025). This implies schools should track engagement dimension-by-dimension over the school year.

CONCLUSION

This research examines the impact of students' engagement on academic achievement among university students in China. Descriptive analysis confirms the high level of students' engagement with behavioural engagement being the highest, followed by emotional engagement and cognitive engagement. However, the most significant predictor of students' academic achievement was cognitive engagement, followed by behavioural engagement and emotional engagement. The findings suggest emphasising more deep learning tasks and learning strategies that facilitate complex idea generation and cognitive development in order to support students' academic achievement in China.

REFERENCES

- Ahmar, F. (2013). Socio Economic Status and its Relation to Academic Achievement of Higher Secondary School Students. *IOSR Journal of Humanities and Social Science*, 13(6), 13–20. <https://doi.org/10.9790/0837-1361320>
- Alfaifi, M. S., AbuZayyad-Nuseibeh, H., Awaida, N., & James, W. W. (2020). Graduate students perceptions of success in United States colleges. *Arab World English Journal*, 11(2), 202–213. <https://doi.org/10.24093/awej/vol11no2.14>
- Arwin, A., Kenedi, A. K., Anita, Y., & Handrianto, C. (2022, June). The design of covid-19 disaster mitigation e-module for students of grades 1 in primary school. In *6th International Conference of Early Childhood Education (ICECE-6 2021)* (pp. 173-176). Atlantis Press. <https://doi.org/10.2991/assehr.k.220602.036>
- Byrnes, J. (2011). Academic achievement. *Elsevier eBooks*, 1–9. <https://doi.org/10.1016/b978-0-12-373951-3.00001-6>
- Chen, S. (2023). Learning motivations and effort beliefs in Confucian cultural context: A dual-mode theoretical framework of achievement goal. *Frontiers in Psychology*, 14, 1058456. <https://doi.org/10.3389/fpsyg.2023.1058456>
- Das, P., Debnath, S., & De, T. (2025). THE CONCEPT OF ACADEMIC ACHIEVEMENT: PATHWAYS TO SUCCESS. *the Social Science Review a Multidisciplinary Journal.*, 3(3), 187–190. <https://doi.org/10.70096/tssr.250303031>
- Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.).
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59–109. <https://doi.org/10.3102/00346543074001059>

- Galappaththi, I. I. L., Dissanayake, R., Welgama, T. W., Somachandara, U. A., Weeraratna, R. S., & Pathirana, G. Y. (2020). Identifying the Empirical Gaps in the Relationships between Student Engagement and Their Academic Achievement; Future Research. *South Asian Journal of Social Studies and Economics*, 1–8. <https://doi.org/10.9734/sajsse/2019/v5i430150>
- Gebregergis, W. T., Beraki, F., Michael, M., Ahmedin, M., Debesay, N., Atoshm, T., Tekleberhan, W., Kovács, K. E., & Csukonyi, C. (2023). Factors influencing academic achievement among college students: the influence of emotional intelligence, student engagement and demographics. *European Journal of Psychology and Educational Research*, volume–6–2023(volume–6–issue–4–december–2023), 181–193. <https://doi.org/10.12973/ejper.6.4.181>
- Guo, X., & Ibrahim, N. M. (2023). Engagement markers in EFL MOOC lectures in Chinese universities. *International Journal of Information and Education Technology*, 13(12), 1850–1857. <https://doi.org/10.18178/ijiet.2023.13.12.1998>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.).
- Han, C., & Huang, J. (2022). Chinese college students' perceived teacher autonomy support and engagement: a moderated mediation model. *International Journal of Learning Teaching and Educational Research*, 21(7), 269–285. <https://doi.org/10.26803/ijlter.21.7.14>
- Handrianto, C., Rahman, M. A., & Nengsih, Y. K. (2024). Bridging theory and practice: Crafting blended learning communities for empowering ELT professionals in Indonesia. In Siswadi et al., (Ed.), *Education, Character, and Humanistic Pedagogy: Concept, Theory, and Applications* (pp. 128-148). PT Mafy Media Literasi Indonesia.
- Hong, W., Zhen, R., Liu, R., Wang, M., Ding, Y., & Wang, J. (2020). The longitudinal linkages among Chinese children's behavioural, cognitive, and emotional engagement within a mathematics context. *Educational Psychology*, 40(6), 666–680. <https://doi.org/10.1080/01443410.2020.1719981>
- Jankovic, S. (2022). The multivariate statistical analysis – multiple linear regression. *International Journal on Biomedicine and Healthcare*, 10(4), 173. <https://doi.org/10.5455/ijbh.2022.10.173-175>
- Jiang, Y., Joshi, D. R., & Khanal, J. (2025). Ascribed and achieved factors associated with the academic performance: A longitudinal study of university students in China. *SAGE Open*, 15(3). <https://doi.org/10.1177/21582440251356755>
- Jin, X. (2023). The role of effort in understanding academic achievements: empirical evidence from China. *European Journal of Psychology of Education*, 39(1), 389–409. <https://doi.org/10.1007/s10212-023-00694-5>
- Kehan, L., Kaur, A., Yu, Z., Yuzhen, H., Yuchong, H., Yinuo, Z., & Noman, M. (2024). Seat Selection as a Function of Cultural and Individual Differences: Insights from Undergraduate Students in China. *Teaching & Learning Inquiry the ISSOTL Journal*, 12. <https://doi.org/10.20343/teachlearninqu.12.7>
- Lane, D. J., & Gibbons, F. X. (2007). Social comparison and satisfaction: Students' reactions after exam feedback predict future academic performance1. *Journal of Applied Social Psychology*, 37(6), 1363–1384. <https://doi.org/10.1111/j.1559-1816.2007.00216.x>
- Li, G., Chen, W., & Duanmu, J. (2009). Determinants of international students' academic performance. *Journal of Studies in International Education*, 14(4), 389–405. <https://doi.org/10.1177/1028315309331490>
- Li, J. (2017). *Social Reproduction and Migrant Education: A Critical Sociolinguistic Ethnography of Burmese Students' Learning Experiences at a Border High School in China* (Doctoral dissertation, Macquarie University, Faculty of Human Sciences, Department of Linguistics).
- Li, P., Zhou, N., Zhang, Y., Xiong, Q., Nie, R., & Fang, X. (2017). Incremental Theory of Intelligence Moderated the Relationship between Prior Achievement and School Engagement in Chinese High School Students. *Frontiers in Psychology*, 8, 1703. <https://doi.org/10.3389/fpsyg.2017.01703>

- Li, Z., & Mohammad, M. (2025). Intersectionality and Educational inequality in China: Understanding the effects of race, gender, and class on student success. *Uniglobal Journal of Social Sciences and Humanities*, 4, 180–185. <https://doi.org/10.53797/ujssh.v4i1.21.2025>
- Liu, J. (2025). Research on the application and Effectiveness of social and emotional learning in Chinese education. *Advances in Social Science, Education and Humanities Research/Advances in Social Science, Education and Humanities Research*, 89–96. https://doi.org/10.2991/978-2-38476-440-2_11
- Liu, M., Noordin, N., Ismail, L., & Abdrahim, N. A. (2023). Relationship between Student Engagement and Academic Achievement in College English Education for Non-English Majors in China. *International Journal of Learning Teaching and Educational Research*, 22(8), 203–232. <https://doi.org/10.26803/ijlter.22.8.12>
- Luo, Q., Chen, L., Yu, D., & Zhang, K. (2023). The mediating role of learning engagement between Self-Efficacy and academic achievement among Chinese college students. *Psychology Research and Behavior Management*, Volume 16, 1533–1543. <https://doi.org/10.2147/prbm.s401145>
- Matt, D. G. F., Banseng, S., Gerry, D., & Handrianto, C. (2022). Effect of wordwall in teaching malay literature component amongst form one students. *International Journal of Education, Technology and Science*, 2(3), 279–287.
- Meng, Q., & Zhang, Q. (2023). The Influence of Academic Self-Efficacy on university students' academic performance: The mediating effect of academic engagement. *Sustainability*, 15(7), 5767. <https://doi.org/10.3390/su15075767>
- Meyer, J., Jansen, T., Hübner, N., & Lüdtke, O. (2023). Disentangling the association between the big five personality traits and student achievement: Meta-Analytic Evidence on the role of domain specificity and achievement measures. *Educational Psychology Review*, 35(1). <https://doi.org/10.1007/s10648-023-09736-2>
- Nengsih, Y. K., Handrianto, C., Pernantah, P. S., Kenedi, A. K., & Tannoubi, A. (2022). The implementation of interactive learning strategy to formulating learning objectives in package c program. *Spektrum: Jurnal Pendidikan Luar Sekolah (PLS)*, 10(2), 311–317. <https://doi.org/10.24036/spektrumpls.v10i2.117215>
- Pallant, J. (2020). *SPSS Survival Manual* (7th ed.).
- Pekrun, R. (2006). The Control-Value Theory of Achievement Emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, 18(4), 315–341. <https://doi.org/10.1007/s10648-006-9029-9>
- Pintrich, P. R. (2004). A Conceptual Framework for Assessing Motivation and Self-Regulated Learning in College students. *Educational Psychology Review*, 16(4), 385–407. <https://doi.org/10.1007/s10648-004-0006-x>
- Qu, J., & Bhatta, D. D. (2025). Validity analysis of SE and predictors. [Dataset]. In *Figshare*. <https://doi.org/10.1371/journal.pone.0337038.t004>
- Reeve, J., Basarkod, G., Jang, H., Gargurevich, R., Jang, H., & Cheon, S. H. (2025). Specialized purpose of each type of student engagement: a Meta-Analysis. *Educational Psychology Review*, 37(1). <https://doi.org/10.1007/s10648-025-09989-z>
- Ruan, Y. (2024). Exploring multiple regression models: key concepts and applications. *Science and Technology of Engineering Chemistry and Environmental Protection*, 1(7). <https://doi.org/10.61173/yjpt3s59>
- Salgado, J. F., Cuadrado, D., & Moscoso, S. (2022). Counterproductive Academic Behaviors and Academic Performance: A Meta-Analysis and A Path Analysis Model. *Frontiers in Psychology*, 13, 893775. <https://doi.org/10.3389/fpsyg.2022.893775>
- Sarte, N. M. R., Santiago, B. T., Dagdag, J. D., & Handrianto, C. (2021). Welcome back: The return of college dropouts to school. *Jurnal Pendidikan dan Pemberdayaan Masyarakat (JPPM)*, 8(2), 140–149. <https://doi.org/10.36706/jppm.v8i2.15386>
- Setia, M. (2016). Methodology series module 3: Cross-sectional studies. *Indian Journal of Dermatology*, 61(3), 261. <https://doi.org/10.4103/0019-5154.182410>

- She, L., Ma, L., Jan, A., Nia, H. S., & Rahmatpour, P. (2021). Online learning satisfaction during COVID-19 pandemic among Chinese university students: the serial mediation model. *Frontiers in Psychology*, 12, 743936. <https://doi.org/10.3389/fpsyg.2021.743936>
- Solfema, S., Sunarti, V., Handrianto, C. & Rahman, M. A. (2024). *Prinsip-prinsip andragogi dalam pelatihan orang dewasa (Principles of andragogy in adult training)*. Rajawali Pers.
- Tabachnick, B. G., & Fidell, L. S. (2019). *Using Multivariate Statistics* (7th ed.).
- Tao, Y., & Yu, J. (2024). Cultural threads in writing mastery: a structural analysis of perfectionism, learning self-efficacy, and motivation as mediated by self-reflection in Chinese EFL learners. *BMC Psychology*, 12(1), 80. <https://doi.org/10.1186/s40359-024-01572-5>
- Teng, Y., & Wang, X. (2021). The effect of two educational technology tools on student engagement in Chinese EFL courses. *International Journal of Educational Technology in Higher Education*, 18(1), 27. <https://doi.org/10.1186/s41239-021-00263-0>
- Vrugt, A. (1994). Perceived self-efficacy, social comparison, affective reactions and academic performance. *British Journal of Educational Psychology*, 64(3), 465–472. <https://doi.org/10.1111/j.2044-8279.1994.tb01117.x>
- Wang, C. (2024). Cultivating insight and engagement: exploring the role of Trait Emotional Intelligence in Chinese art education. *Frontiers in Psychology*, 15, 1372717. <https://doi.org/10.3389/fpsyg.2024.1372717>
- Wang, H., Wang, Y., & Li, S. (2023). Unpacking the relationships between emotions and achievement of EFL learners in China: Engagement as a mediator. *Frontiers in Psychology*, 14, 1098916. <https://doi.org/10.3389/fpsyg.2023.1098916>
- Wang, M., & Eccles, J. S. (2011). Adolescent behavioral, emotional, and cognitive engagement trajectories in school and their differential relations to educational success. *Journal of Research on Adolescence*, 22(1), 31–39. <https://doi.org/10.1111/j.1532-7795.2011.00753.x>
- Wang, X. (2024). An Investigation into How Learning Motivation Affects College Students' Major Choices and Academic Performance in China. *Journal of Education Humanities and Social Sciences*, 29, 214–222. <https://doi.org/10.54097/91kf9485>
- Wehrens, M. J. P. W., Kuypers, H., Dijkstra, P., Buunk, A. P., & Van Der Werf, M. P. C. (2009). The long-term effect of social comparison on academic performance. *European Journal of Social Psychology*, 40(7), 1158–1171. <https://doi.org/10.1002/ejsp.706>
- Wu, T., Lee, H., Wang, W., Lin, C., & Huang, Y. (2023). Leveraging computer vision for adaptive learning in STEM education: effect of engagement and self-efficacy. *International Journal of Educational Technology in Higher Education*, 20(1). <https://doi.org/10.1186/s41239-023-00422-5>
- Yangyang, Z., Ghani, M. F. B. A., & Hoque, K. E. (2025). Does gender matter in secondary students' cognitive engagement and academic achievement in China? *Psychology in the Schools*, 62(11), 4607–4618. <https://doi.org/10.1002/pits.70023>
- Zainil, M., Kenedi, A. K., Rahmatina, Indrawati, T., & Handrianto, C. (2024). The influence of STEM-based digital learning on 6C skills of elementary school students. *Open Education Studies*, 6(1), 20240039.
- Zhang, Y. (2025). Exploring the impacts of academic Self-Efficacy on learning engagement and academic success among Chinese master's students. *International Journal of Learning Teaching and Educational Research*, 24(4), 1–27. <https://doi.org/10.26803/ijlter.24.4.1>
- Zhang, Z. (2019). Modelling undergraduate student engagement in China. *Theory and Practice in Language Studies*, 9(12), 1501. <https://doi.org/10.17507/tpls.0912.06>
- Zhu, H., & Arnold, K. (2013). Understanding student engagement and achievement in Chinese universities: A study of Beijing College students. *International Journal of Chinese Education*, 2(1), 70–92. <https://doi.org/10.1163/22125868-12340014>
- Zhu, J. (2022). A Research on China's EFL Learners' Self- Individual Self-Efficacy's Impacts on Learning Achievement Based on Hofstede's Cultural Dimensions. *Education Journal*, 5(1), 94. <https://doi.org/10.31058/j.edu.2022.51011>

- Zimmerman, B. J. (2002). Becoming a Self-Regulated Learner: An Overview. *Theory Into Practice*, 41(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2
- Zong, Z., Yang, W., & Li, Y. (2024). Exploring social-emotional learning in China: a mixed-methods study with Chinese early childhood teachers. *Discover Education*, 3(1). <https://doi.org/10.1007/s44217-024-00098-7>