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Academic Motivation Predicted by Growth Mindset and Parental Support

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ABSTRACT

Objective: This study aimed to investigate the predictive roles of growth mindset and perceived parental support on academic motivation among high school students in China.

Methods and Materials: A correlational descriptive design was employed, and the sample included 499 high school students selected based on the Morgan and Krejcie (1970) sample size table. Participants completed standardized instruments: the Academic Motivation Scale (AMS), the Growth Mindset Scale, and the Perceived Parental Autonomy Support Scale (P-PASS). Descriptive statistics, Pearson correlation, and linear regression analyses were conducted using SPSS-27 to examine the relationships and predictive power of the independent variables on academic motivation.

Findings: Descriptive results showed that students reported high levels of academic motivation (M = 5.41, SD = 0.72), growth mindset (M = 4.83, SD = 0.65), and parental support (M = 5.12, SD = 0.69). Pearson correlation analysis revealed significant positive relationships between academic motivation and growth mindset (r = .61, p < .001), as well as between academic motivation and parental support (r = .55, p < .001). Linear regression results indicated that growth mindset (β = .42, p < .001) and parental support (β = .36, p < .001) were significant predictors of academic motivation. The regression model was statistically significant (F(2, 496) = 202.14, p < .001), with an R² value of .45, indicating that the two predictors jointly explained 45% of the variance in academic motivation.

Conclusion: The findings demonstrate that both growth mindset and perceived parental support significantly contribute to the academic motivation of high school students.

Keywords: Academic motivation, growth mindset, parental support, high school students, educational psychology, China

1. Introduction

he concept of growth mindset, introduced by Carol Dweck, has gained significant empirical support for its impact on academic functioning. Individuals with a growth mindset believe that intelligence and abilities can be developed through effort, strategies, and support, as opposed to those with a fixed mindset who view intelligence as static and unchangeable. Research consistently shows that students with a growth mindset are more likely to embrace challenges, persist through difficulties, and recover from academic setbacks, which are core attributes of motivated learners. For instance, studies have shown that growth mindset positively predicts academic motivation by enhancing learners' internal goals and belief in the value of learning processes over mere performance outcomes (Chou, 2024; Mashraki, 2025). This relationship has been corroborated across diverse cultural settings, including China, where the interplay between cultural values, academic competition, and belief systems further magnifies the influence of mindset beliefs (Cheng et al., 2024; Dong et al., 2023).

Empirical investigations support the notion that growth mindset enhances motivational outcomes through multiple pathways, including increased academic resilience and grit (Fatima, 2024; Zhao et al., 2024). For example, Zhao et al. (2024) demonstrated that students with stronger growth mindsets showed greater levels of achievement motivation, which in turn enhanced their subjective well-being and academic engagement. Similarly, Meyer and Stutts (2024) found that growth mindset interventions can significantly reduce academic stress and increase motivation among college students. These effects are not limited to older students; even single-session interventions have proven effective in improving motivation and performance among younger populations (Cheng et al., 2024). Moreover, mindset beliefs also influence the use of adaptive learning strategies and persistence, which are closely tied to academic motivation (Forbes-McKay et al., 2023; Park & Jeong, 2022). Research further reveals that students who perceive their teachers and parents as supportive of growth-oriented beliefs tend to internalize these perspectives and become more motivated to learn (Vestad & Bru, 2023; Zhang & Wu,

Parental support, on the other hand, represents a critical environmental influence that interacts with students' psychological traits to shape academic behaviors. Perceived parental support refers to students' perceptions of their

parents' involvement, encouragement, and emotional availability related to their education. This support fosters a secure and autonomous learning environment, which is essential for sustaining academic motivation. Several studies have emphasized that students who feel supported by their parents are more likely to exhibit higher levels of academic engagement, confidence, and goal orientation (Mohamoud, 2024; Wulandar et al., 2024). In particular, the provision of autonomy support by parents—encouraging students to take initiative and make independent choices—has been associated with self-determined motivation, which is more enduring and self-regulated (Alfonso Sophia Ana Jesusa et al., 2023; Mammadov & Tozoglu, 2023).

Parental involvement and support influence not only academic performance but also students' self-perceptions, including beliefs about their capabilities and the value of education (Ali et al., 2023). A study by Hasnur et al. (2025) found that both growth mindset and a supportive campus environment, which includes parental involvement, positively influenced cadet academic performance. The role of parental support becomes even more salient during adolescence, a developmental stage marked by identity formation and a growing need for autonomy. Adolescents who experience consistent parental encouragement and emotional responsiveness are more likely to internalize academic goals and sustain their motivation even in challenging educational environments (Laurell et al., 2025; Tao et al., 2022). Additionally, research suggests that parental support may serve as a protective factor against academic stress and burnout, thereby indirectly fostering motivation through emotional stability and psychological safety (Khilma & Utami, 2024; Mashraki, 2025).

Moreover, mindset-related beliefs and parental support have also been linked to broader educational outcomes such as academic success, engagement, and well-being (Alfonso Sophia Ana Jesusa et al., 2023; Stanley et al., 2023). These findings suggest that academic motivation may function as a mediating variable through which growth mindset and parental support exert their influence. For instance, a study by Lee and Kwon (2023) found that academic motivation significantly mediated the relationship between mindset beliefs and adaptation to academic expectations among university students. In similar research, students with a strong growth mindset and positive perceptions of parental support demonstrated higher academic persistence and lower rates of dropout (Kutasi, 2023; Sriram, 2022). This cumulative evidence supports the theoretical proposition

that mindset and environmental support interact to shape motivation and, consequently, academic behavior.

Given these theoretical and empirical insights, the present study aims to investigate how growth mindset and perceived parental support predict academic motivation among high school students in China.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a correlational descriptive research design to investigate the predictive roles of growth mindset and perceived parental support on academic motivation among adolescents. The study population consisted of high school students from various regions in China. A total of 499 participants were selected through stratified random sampling, with the sample size determined according to the Morgan and Krejcie sample size table (1970), ensuring adequate statistical power and representativeness.

2.2. Measures

2.2.1. Academic Motivation

To measure the dependent variable, academic motivation, the present study utilized the Academic Motivation Scale (AMS) developed by Vallerand et al. (1992). This standardized instrument is grounded in self-determination theory and includes 28 items divided across seven subscales: intrinsic motivation to know, intrinsic motivation toward accomplishment, intrinsic motivation to experience stimulation, identified regulation, introjected regulation, external regulation, and amotivation. Each item is rated on a 7-point Likert scale ranging from 1 (does not correspond at all) to 7 (corresponds exactly), with higher scores reflecting stronger motivation within the respective subscale. The AMS has been widely validated in various educational contexts and age groups, demonstrating strong internal consistency across subscales (Cronbach's alpha values typically above 0.70) and solid construct and criterion validity in prior studies.

2.2.2. Growth Mindset

To assess growth mindset as one of the independent variables, the study employed the Growth Mindset Scale developed by Dweck (2006), specifically the 8-item version commonly used in academic research. The scale evaluates

an individual's belief in the malleability of intelligence, with items such as "You can always substantially change how intelligent you are." Responses are recorded on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Some items are reverse-scored to control for response bias, and higher total scores indicate a stronger growth mindset. This tool has demonstrated good reliability (Cronbach's alpha > 0.80) and has been validated through various empirical studies in educational psychology, confirming its predictive utility in academic achievement and motivation.

2.2.3. Perceived Parental Support

To measure the second independent variable, parental support, the Perceived Parental Autonomy Support Scale (P-PASS) developed by Mageau et al. (2015) was utilized. This scale includes 24 items covering three subscales: autonomy support, structure, and involvement. Participants rate their agreement on a 7-point Likert scale ranging from 1 (do not agree at all) to 7 (very strongly agree). Items reflect perceptions of how parents encourage autonomy, provide guidance, and show warmth. The P-PASS has demonstrated excellent internal consistency, with Cronbach's alpha values typically ranging from 0.80 to 0.92 across subscales. Previous research has confirmed the scale's construct validity and its relevance in predicting motivation-related outcomes among adolescents and young adults.

2.3. Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 27. To examine the relationships between the dependent variable (academic motivation) and each of the independent variables (growth mindset and perceived parental support), Pearson correlation coefficients were calculated. In addition, a linear regression analysis was conducted to determine the extent to which growth mindset and perceived parental support jointly predicted academic motivation. All statistical tests were conducted at a significance level of p < 0.05.

3. Findings and Results

The sample consisted of 499 high school students from various regions in China. Of these participants, 267 (53.5%) were female and 232 (46.5%) were male. In terms of grade level, 164 students (32.9%) were in tenth grade, 171 students (34.3%) were in eleventh grade, and 164 students (32.9%)

were in twelfth grade. Regarding age, 102 students (20.4%) were 15 years old, 205 students (41.1%) were 16 years old, 148 students (29.7%) were 17 years old, and 44 students (8.8%) were 18 years old. These demographic details

suggest a fairly balanced distribution across gender and grade level, allowing for generalizability across the high school population.

 Table 1

 Descriptive Statistics for Study Variables

Variable	Mean	Standard Deviation	
Academic Motivation	5.41	0.72	
Growth Mindset	4.83	0.65	
Parental Support	5.12	0.69	

The descriptive statistics presented in Table 1 indicate that the participants reported relatively high levels of academic motivation (M = 5.41, SD = 0.72), growth mindset (M = 4.83, SD = 0.65), and perceived parental support (M = 5.12, SD = 0.69) on their respective scales. These mean

scores suggest that the students generally perceived themselves as motivated and believed in the malleability of intelligence, while also reporting supportive behaviors from their parents.

 Table 2

 Pearson Correlation Coefficients Between Study Variables

Variables	1	2	3
1. Academic Motivation	_		
2. Growth Mindset	.61**(p < .001)	_	
3. Parental Support	.55**(p < .001)	.47** (p < .001)	_

Table 2 shows the results of Pearson correlation analyses. Academic motivation was significantly and positively correlated with growth mindset ($r=.61,\ p<.001$) and parental support ($r=.55,\ p<.001$). Additionally, growth

mindset and parental support were positively correlated with each other (r = .47, p < .001). These findings suggest that both individual belief systems and external support are associated with higher academic motivation among students.

Table 3
Summary of Regression Analysis: Model Fit Statistics

Source	Sum of Squares	df	Mean Square	R	R²	Adjusted R ²	F	р
Regression	128.61	2	64.31	.67	.45	.45	202.14	< .001
Residual	155.46	496	0.31					
Total	284.07	498						

The regression summary in Table 3 indicates that the model was statistically significant, F(2, 496) = 202.14, p < .001, with an R^2 value of .45. This suggests that 45% of the variance in academic motivation can be explained by the

combined contribution of growth mindset and perceived parental support. The adjusted R² remained stable at .45, confirming the model's robustness.

Table 4

Multivariate Regression Coefficients Predicting Academic Motivation

Predictor	В	Standard Error	β	t	р	
Constant	1.73	0.21	_	8.24	< .001	
Growth Mindset	0.48	0.06	.42	8.11	< .001	
Parental Support	0.39	0.05	.36	7.80	< .001	



Table 4 displays the multivariate regression coefficients for predicting academic motivation. Growth mindset was a significant positive predictor (B = 0.48, β = .42, t = 8.11, p < .001), indicating that as growth mindset scores increase, academic motivation also increases. Similarly, perceived parental support was a significant predictor (B = 0.39, β = .36, t = 7.80, p < .001), reinforcing the notion that supportive parenting behaviors are associated with greater student motivation. The intercept (constant) was also significant (B = 1.73, p < .001), representing the expected academic motivation when both predictors are at zero. These findings confirm the independent and joint effects of the two predictors on academic motivation.

4. Discussion and Conclusion

The present study sought to examine how growth mindset and perceived parental support predict academic motivation among high school students in China. Pearson correlation analyses revealed significant positive relationships between academic motivation and both growth mindset and parental support. Additionally, results from the linear regression analysis indicated that both variables significantly contributed to the prediction of academic motivation, with growth mindset accounting for a slightly higher proportion of the variance. These findings suggest that students who believe in the malleability of intelligence and perceive their parents as emotionally and structurally supportive are more likely to be academically motivated. This outcome confirms theoretical frameworks that emphasize the joint contribution of cognitive beliefs and environmental support in promoting sustained academic engagement.

The significant association between growth mindset and academic motivation supports prior empirical findings and reinforces the motivational advantage of holding incremental beliefs about intelligence. Students with a growth mindset tend to adopt mastery goals, view effort as a path to success, and persist in the face of setbacks—all of which are key indicators of academic motivation (Mashraki, 2025). Studies have consistently shown that students who believe intelligence can be developed are more likely to invest in learning and demonstrate greater perseverance (Cheng et al., 2024; Zhao et al., 2024). For example, Cheng et al. (2024) reported that even a single-session mindset intervention among junior secondary students in China significantly boosted their learning motivation. Similarly, Meyer and Stutts (2024) found that growth mindset

interventions increased academic motivation while reducing stress among college students (Meyer & Stutts, 2024). These findings are further corroborated by research highlighting the psychological mechanisms through which mindset enhances motivation, such as resilience, academic grit, and reduced fear of failure (Fatima, 2024; Tao et al., 2022).

In alignment with the present study, past research also identifies growth mindset as a strong predictor of motivational behaviors and self-directed learning. For instance, Park and Jeong (2022) emphasized that students with growth-oriented beliefs are more likely to show selfregulation and higher academic self-efficacy, leading to greater motivation (Park & Jeong, 2022). Moreover, the role of teachers and parents in reinforcing growth beliefs has been shown to amplify this effect. Zhang and Wu (2025) found that perceived parental autonomy support significantly strengthened the link between students' growth mindset and academic achievement (Zhang & Wu, 2025). Similarly, Vestad and Bru (2023) demonstrated that when teachers promoted growth mindset, students exhibited greater academic engagement and motivation (Vestad & Bru, 2023). These studies underscore that both internal beliefs and external affirmations work in tandem to support academic motivation.

The current study also confirmed a significant positive relationship between perceived parental support and academic motivation, echoing the growing recognition of family influence on student learning. Students who perceive their parents as supportive are more likely to feel secure, autonomous, and emotionally equipped to engage with academic challenges. This finding aligns with research by Mohamoud (2024), who found that parental support enhances students' resilience and motivation by creating a nurturing academic environment (Mohamoud, 2024). Similarly, Wulandar et al. (2024) demonstrated that parental participation in students' education significantly impacted their motivation and academic success (Wulandar et al., 2024). These findings support the notion that academic motivation is not solely an internal trait but is shaped by contextual factors such as family involvement and emotional climate.

Parental support does more than provide resources—it validates students' efforts and reinforces their belief in their capabilities. According to Mammadov and Tozoglu (2023), autonomy-supportive parenting, characterized by encouragement and respect for the child's academic choices, fosters intrinsic motivation and self-determined behavior in

students (Mammadov & Tozoglu, 2023). This is mirrored in the findings of Alfonso Sophia Ana Jesusa et al. (2023), who found that nursing students who perceived high parental support also exhibited strong academic motivation and success (Alfonso Sophia Ana Jesusa et al., 2023). The current study's confirmation of these associations in a Chinese context is particularly noteworthy, as it demonstrates the cross-cultural applicability of these constructs. In cultures where academic achievement is highly emphasized, such as China, parental influence may be even more pronounced.

Further support comes from Ali et al. (2023), who showed that students with strong parental support not only achieved better grades but also reported higher academic satisfaction and motivation (Ali et al., 2023). Similarly, Hasnur et al. (2025) emphasized the dual importance of a supportive academic environment and family support in sustaining cadet academic performance and motivational drive (Hasnur et al., 2025). The interplay between support and mindset is also worth noting. Students who receive consistent encouragement from parents are more likely to internalize growth beliefs, which in turn promote a stronger motivational orientation. Laurell et al. (2025) emphasized that students with high growth mindset and family support maintained higher academic achievement across domains (Laurell et al., 2025). The synergistic impact of belief and support strengthens the case for integrating both personal and environmental components in motivation-focused educational interventions.

Although growth mindset emerged as a slightly stronger predictor in the regression model, the results underscore that neither mindset nor parental support operates in isolation. The findings are consistent with the results of Altikulaç et al. (2024), who identified distinct student profiles where mindset and motivation co-occurred, shaped by individual and contextual factors (Altikulaç et al., 2024). Furthermore, the research by Forbes-McKay et al. (2023) confirms that motivation is a dynamic process influenced by personal beliefs, learning strategies, and social environments (Forbes-McKay et al., 2023). This supports the idea that educational stakeholders should consider multi-layered models when designing interventions to foster motivation.

The contribution of mindset to motivation also reflects underlying neurological and psychological mechanisms. Zhao et al. (2022) provided neuroimaging evidence that growth mindset fosters cognitive development through enhanced brain connectivity and functional coactivation, linking these biological changes to motivation and

performance (Zhao et al., 2022). King (2025) further argued that growth mindset has a magnified effect in students from socioeconomically advantaged backgrounds, but with adequate support, students from diverse backgrounds can also benefit (King, 2025). This points to the potential for growth mindset interventions to reduce motivational gaps when paired with equitable parental and educational support systems.

The results also resonate with findings by Lee and Kwon (2023), who found that academic motivation mediated the relationship between growth mindset and academic adjustment among beauty majors (Lee & Kwon, 2023). This suggests that mindset may function not only as a direct predictor but also as a pathway through which other psychological and contextual variables influence academic outcomes. Similarly, Sriram (2022) reported that implementing growth-mindset-based grading systems led to improved academic performance, largely by increasing students' intrinsic motivation (Sriram, 2022). Together, these findings support the central conclusion of the current study: academic motivation is shaped by the convergence of students' belief systems and their perceptions of parental involvement and encouragement.

5. Limitations & Suggestions

Despite its valuable findings, this study has several limitations. First, the cross-sectional design prevents the establishment of causal relationships between variables. Longitudinal data would provide greater insight into the temporal dynamics of growth mindset, parental support, and academic motivation. Second, the study relied exclusively on self-report measures, which may be influenced by social desirability bias or inaccurate self-assessment. Including teacher or parent reports could provide a more comprehensive view. Third, the sample was drawn entirely from high school students in China, which may limit the generalizability of the findings to other cultural or educational contexts. Finally, although gender and grade level were included in demographic data, their potential moderating effects on the main variables were not analyzed and should be explored in future studies.

Future research should consider longitudinal or experimental designs to examine how changes in mindset and parental support over time influence motivational trajectories. Investigating the mediating roles of academic self-efficacy, learning strategies, or emotional regulation could also enrich understanding of how these predictors operate. Cross-cultural studies comparing the role of growth mindset and parental support in different educational systems would help identify universal versus culture-specific patterns. Additionally, future research could explore how digital parental engagement tools or online mindset interventions affect academic motivation in increasingly technology-mediated learning environments. Finally, it would be useful to assess how other social factors, such as peer influence or teacher autonomy support, interact with mindset and parental support in predicting motivation.

Educational practitioners should prioritize the integration of growth mindset principles into everyday teaching practices, including feedback, assessments, and classroom discourse. Schools should also provide training for parents to promote autonomy-supportive behaviors and constructive academic involvement. Parent-teacher collaboration programs can reinforce consistent messaging about effort, learning, and persistence at home and in school. Counselors and school psychologists should incorporate mindsetbuilding and family engagement into student development programs to foster resilience and motivation. By addressing both personal beliefs and family support structures, interventions can be more comprehensive and effective in enhancing students' academic motivation and success.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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