The Effects of Family Functioning, Academic Self-Regulation, and Expectations on Middle School Students' Academic Achievement

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Abstract

This study examined the effects of family functioning, academic self-regulation, and expectations on the academic achievement of middle school students. A randomly selected sample of students from two middle schools in Guizhou City participated in the study, and data were collected using scales that had been tested for validity and reliability. Descriptive statistics, correlation analyses, and multiple regression analyses were employed to investigate the relationships among the variables. Correlational results showed that family functioning, self-regulation, and expectations were all positively associated with academic achievement. However, the regression analysis revealed that only self-regulation and expectations significantly predicted academic performance, whereas family functioning, although not a direct predictor, may influence academic outcomes indirectly through other variables. The findings extend the integrated framework of family systems theory, self-regulation theory, and expectancy-value theory, and provide practical implications for family education, classroom instruction, and educational policy. This research not only deepens the understanding of the interplay between motivation, family dynamics, and academic performance in educational psychology but also offers valuable insights for designing educational interventions.

Keywords: family function, academic self-regulation, expectations, academic performance

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Introduction

In the field of educational research, academic performance has consistently been regarded as a central topic, as it reflects not only students' mastery of knowledge but also their adaptation to the broader demands of schooling. The middle school period is particularly critical, representing a stage of rapid development in cognition, emotions, and social skills. During this time, students engage in the construction of self-identity while simultaneously facing multiple pressures from family, school, and society. Recent statistics highlight the urgency of addressing these challenges. According to the 2024 Report on Depression in Children and Adolescents, the average age for the first diagnosis of depression among Chinese students is 13.41 years, while the average age for the first school withdrawal is 13.74 years, with both figures concentrated around the age of 14. These findings underscore the vulnerability of middle school students and the potential risks associated with unmanaged academic pressure and unfavorable family environments.

One theoretical framework particularly relevant to explaining students' academic achievement is Expectancy-Value Theory (EVT) (Eccles & Wigfield, 2002). EVT posits that students' academic behaviors are largely determined by two factors: their expectancies for success and the subjective value they place on academic tasks. Expectancy beliefs refer to students' confidence in their ability to succeed in a given domain, while task values encompass dimensions such as interest, importance, and perceived utility. When students believe they are capable of performing well and perceive their schoolwork as meaningful and worthwhile, they are more likely to invest effort, persist in the face of difficulties, and ultimately achieve higher outcomes. Applied to middle school students, EVT highlights how motivational beliefs shape the way learners engage with academic challenges during this sensitive developmental stage. In contexts where academic pressure is intense, fostering positive expectancy beliefs and enhancing the perceived value of learning tasks can buffer stress and promote sustained achievement. Therefore, examining expectancy alongside family functioning and self-regulation provides a comprehensive understanding of the multiple influences on students' academic performance.

Expectations, as motivational factors, include the beliefs and predictions of students, parents, and teachers regarding academic achievement. The Pygmalion effect demonstrates that positive expectations can significantly enhance students' performance (Rosenthal, 2002). Peng (2012) emphasized that reasonable expectations stimulate students' interest in learning and strengthen self-efficacy. These findings align with Expectancy-Value Theory (EVT), which posits that students' achievement-related behaviors are influenced by both expectancy beliefs (confidence in success) and task values (interest, importance, and utility) (Eccles & Wigfield, 2002). When students believe they are capable and view tasks as meaningful, they are more likely to persist and succeed academically.

Family functioning is widely recognized as a key dimension influencing the academic performance of middle school students. It refers to the capacity of the family system to meet members' emotional, communicative, regulatory, and problem-solving needs (Yue, 2014). In practice, family functioning reflects interaction patterns, the degree of emotional support among family members, and the overall stability of the family environment, including warmth, communication quality, and problem-solving ability (Zhou, 2020). From a developmental psychology perspective, the family environment is not merely a backdrop for individual growth but a critical factor shaping students' academic outcomes (Tong, 2007; Yu, 2019). Empirical research has demonstrated that parental emotional warmth, high-quality

educational involvement, and secure attachment relationships are positively associated with adolescents' learning achievements (Bowlby & Ainsworth, cited in Yue, 2014; Ding, 2018).

Academic self-regulation, in turn, refers to students' ability to set goals, implement learning strategies, monitor their progress, and reflect on outcomes. Zimmerman's (2000) model identifies self-regulation as a central mechanism for effective learning. Consistent with this view, domestic studies have found that students with stronger self-regulation skills are better equipped to cope with academic difficulties and maintain motivation (Guo et al., 2006). Self-regulated learning integrates metacognitive, motivational, and behavioral processes that enable continuous improvement in achievement (Heirweg et al., 2019; Sitzmann & Ely, 2011). More recent research further emphasizes the role of self-regulation as a mediating factor linking contextual influences to academic performance (Wolters & Hussain, 2015; Yang, 2016).

In summary, family functioning, academic self-regulation, and expectations each demonstrate meaningful correlations with students' academic performance. A supportive family environment provides the emotional security and resources necessary for learning, self-regulation equips students with the skills to manage their own learning processes, and positive expectations foster motivation and persistence. Although numerous studies have examined these associations, most have tended to focus on single factors in isolation. For example, Liu and Liu (2023) investigated the home learning environment and academic achievement, Lu and Luo (2022) examined the mediating role of family education, and Yu (2024) analyzed teacher caring behaviors and student engagement. Qu (2004) and Guo et al. (2006) highlighted the influence of self-regulated learning strategies, while Chen (2018) explored ethnic and gender differences in self-regulation among middle school students. While these studies provide valuable insights, they underscore the absence of integrative research that simultaneously considers family functioning, self-regulation, and expectations, particularly in underdeveloped regions of China where educational inequality remains pronounced.

The present study aims to address this gap by examining the effects of family functioning, academic self-regulation, and expectations on the academic performance of middle school students. Grounded in family systems theory, self-regulation theory, and expectancy-value theory, the study seeks to clarify both the direct and indirect pathways through which these factors influence academic outcomes. The findings are expected to contribute theoretically by integrating psychological and educational perspectives and practically by offering guidance for family education, classroom instruction, and educational policy.

Method

Participants

Data were collected from 334 valid cases drawn from two middle schools in Guizhou. The participants were between 12 and 15 years of age and represented a range of demographic backgrounds. Family Functioning Scale ($\alpha = 0.614$).

Instrumentation

Four instruments were employed to measure the study variables: family functioning, academic self-regulation, expectations, and academic achievement. All psychological scales

were administered using a 5-point Likert format ranging from 1 = strongly disagree to 5 = strongly agree, with higher scores indicating higher levels of the respective construct. Reliability of the scales was evaluated using Cronbach's Alpha, and construct validity was examined through expert review of the items.

Family Functioning Scale

Family functioning was assessed using a 10-item scale designed to capture emotional support, communication quality, rule-setting, and problem-solving within the family. Cronbach's Alpha for this scale was 0.614. Expert evaluation confirmed that the items appropriately represented the construct. Sample items include: "Family members openly share their feelings with one another" and "When conflicts arise, our family finds effective ways to resolve them." Higher scores reflect a more supportive and cohesive family environment.

Academic Self-Regulation Scale

Academic self-regulation was measured using a 10-item scale based on Zimmerman's model of self-regulated learning, which emphasizes goal setting, strategy use, monitoring, and reflection. Cronbach's Alpha for this scale was 0.865. Expert review confirmed the adequacy of the items for representing self-regulation in learning. Sample items include: "I set specific goals for my schoolwork" and "When I do poorly on an assignment, I try to figure out what I can do better next time." Higher scores indicate stronger self-regulatory skills in academic contexts.

Expectation Scale

Expectations were assessed with a 10-item scale measuring students' beliefs about their likelihood of success and the value they assign to academic tasks, consistent with expectancy-value theory. Cronbach's Alpha for this scale was 0.837. Expert assessment ensured that the items accurately reflected expectancy beliefs and task values. Sample items include: "I believe I can perform well in my school subjects" and "Doing well in school is important for my future." Higher scores represent stronger expectancy beliefs and task values.

Academic Achievement

Academic performance was measured using students' final exam grades, obtained from school records. Grades were used as an objective indicator of achievement and served as the dependent variable in the analyses.

Results

The purpose of this study was to examine the effects of family functioning, academic self-regulation, and expectations on the academic performance of middle school students. Data analysis was conducted in several stages. First, descriptive statistics were calculated to provide an overview of the central tendencies and variability of the study variables. Next, Pearson correlation analyses were performed to explore the associations among family functioning, self-regulation, expectations, and academic performance. Finally, multiple regression analysis was employed to test the predictive effects of the three independent variables on students' academic achievement. The following section presents the results of these analyses in detail.

Table 1 presents the intercorrelations among family functioning, self-regulation, expectancy, and academic performance. Family functioning demonstrated moderate positive associations with self-regulation (r = .31), expectancy (r = .47), and academic performance (r = .33). These findings suggest that students who perceive greater family support tend to report higher levels of self-regulation, greater academic expectancy, and somewhat stronger academic outcomes. Self-regulation was positively correlated with both expectancy (r = .58) and academic performance (r = .55), indicating that students with stronger self-regulatory skills not only hold higher academic expectations but also achieve better academic results. Expectancy showed the strongest correlation with academic performance (r = .59), underscoring the critical role of students' beliefs and expectations in shaping their achievement. Overall, the correlation results highlight meaningful relationships among the three predictors and academic performance. While all variables were positively related, expectancy and self-regulation emerged as the strongest correlates of academic performance, whereas family functioning, though weaker in magnitude, still exhibited a consistent positive pattern.

Table 1

Pearson Correlation Matrix of the Four Variables (n = 334)

Variables	1	2	3	4
1.Family Functioning	1			
2. Self-regulation	.306**	1		
3. Expectation	.468**	.575**	1	
4. Academic Performance	.334**	.552**	.591**	1

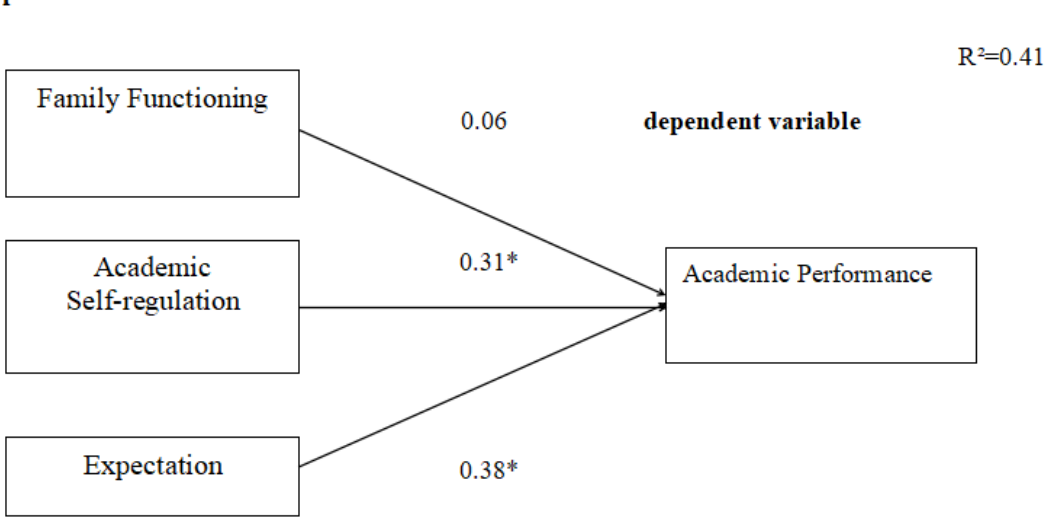
Note: p < 0.01**.

A multiple regression analysis was conducted to examine the predictive effects of self-regulation, family functioning, and expectancy on students' academic performance. The overall regression model was statistically significant, $F(3, n - 4) = 79.38$, $p < .001$, accounting for approximately 41.9% of the variance in academic performance ($R^2 = .419$, Adjusted $R^2 = .414$).

As shown in figure 1, both self-regulation ($\beta = .31$, $p < .001$) and expectancy ($\beta = .38$, $p < .001$) emerged as significant predictors of academic performance, indicating that students with higher levels of self-regulation and expectancy tend to demonstrate stronger academic outcomes. In contrast, family functioning did not contribute significantly to the model ($\beta = .06$, $p = .214$), suggesting that while family dynamics may play an indirect or supportive role, they are not directly associated with academic performance in this sample.

These results highlight the central role of motivational and expectancy-related factors in shaping students' academic achievement. The findings support theoretical perspectives that emphasize the importance of self-regulation and expectancy-value beliefs in predicting educational outcomes, while also pointing to the need for further exploration of how family functioning may exert its influence through indirect pathways.

Figure 1
Multiple Regression Analysis



Discussion and Conclusion

The present study examined the predictive effects of family functioning, academic self-regulation, and expectations on the academic performance of middle school students in Guizhou. The findings underscore the central role of expectancy beliefs and self-regulation in shaping students' academic outcomes, while suggesting that the influence of family functioning may be more indirect.

The correlation analyses indicated that all three predictors were positively associated with academic performance. Among them, expectations had the strongest relationship, which is consistent with Expectancy-Value Theory (Eccles & Wigfield, 2002). EVT emphasizes that students' achievement-related choices, persistence, and performance are largely determined by their expectations of success and the value they place on academic tasks. The present results confirm that when students believe they are capable of performing well and perceive schoolwork as important for their future, they are more motivated to engage and ultimately achieve higher outcomes. This finding aligns with prior research showing that expectancy beliefs are a robust predictor of effort and persistence across cultural and developmental contexts (Peng, 2012; Rosenthal, 2002).

Self-regulation also emerged as a significant predictor, highlighting the importance of students' ability to plan, monitor, and reflect on their learning processes. This finding is in line with Zimmerman's (2000) self-regulation model and supports earlier evidence that self-regulated learning strategies enhance academic performance across subject areas (Guo et al., 2006; Sitzmann & Ely, 2011). Importantly, EVT and self-regulation theory can be understood as complementary: expectancy beliefs motivate students to value and pursue academic tasks, while self-regulation provides the strategies necessary to translate motivation into sustained achievement.

In contrast, family functioning did not significantly predict academic performance in the regression analysis, although it was positively correlated with achievement. This suggests that family functioning may contribute indirectly by shaping students' motivation and self-

regulation. Supportive families provide emotional warmth, consistent communication, and structured guidance, which can foster both positive expectancy beliefs and effective self-regulation skills. This interpretation aligns with family systems theory (Yue, 2014; Zhou, 2020), which highlights the family's role in cultivating socio-emotional resources that influence learning outcomes through indirect pathways.

Taken together, these findings extend the integrated framework of family systems theory, self-regulation theory, and expectancy-value theory. They demonstrate that motivational beliefs (expectancy-value), regulatory strategies (self-regulation), and family context work together to influence academic achievement. By confirming the predictive strength of expectancy and self-regulation, the study highlights the need to strengthen students' confidence in success and equip them with the skills to manage their own learning, while recognizing the family's indirect but essential role in supporting these processes.

The findings have several practical implications. At the family level, strengthening communication, emotional support, and involvement in children's education can create a foundation that fosters positive expectancy beliefs and self-regulation. At the school level, interventions that build students' self-regulatory skills and cultivate a sense of academic competence may directly enhance achievement. At the policy level, integrating family education with motivational and self-regulation training programs can provide a holistic approach to improving student outcomes, particularly in underdeveloped regions.

This study contributes to educational psychology by demonstrating the combined influence of family functioning, self-regulation, and expectancy on middle school students' academic achievement. The findings reinforce the explanatory power of Expectancy-Value Theory, showing that students' beliefs about their success and the value they assign to schoolwork are central to their performance. At the same time, the results emphasize the complementary role of self-regulation in translating motivation into achievement and the indirect contribution of family functioning in shaping these processes. These insights provide a basis for interventions aimed at enhancing both academic performance and student well-being.

Limitations and Future Directions

Several limitations must be considered. The cross-sectional design precludes causal inference; longitudinal studies are needed to clarify the developmental pathways among family functioning, motivation, self-regulation, and performance. Reliance on self-report measures may introduce bias, underscoring the importance of incorporating multiple data sources such as teacher or parent reports. Finally, the sample was limited to two schools in Guizhou, and future research should include larger, more diverse populations to enhance generalizability.

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