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The Influence of Perceived Parental Involvement on Academic Procrastination among Chinese Primary School Students: The Mediating Role of Negative Academic Emotions

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Abstract

Perceived parental involvement plays a crucial role in shaping students' academic procrastination; however, the underlying mechanisms of this influence remain insufficiently understood. To address this gap, the present study investigated the relationship between perceived parental involvement and academic procrastination among primary school students in Shanxi Province, with a specific focus on the mediating role of negative academic emotions. A self-report questionnaire on perceived parental involvement, negative academic emotions, and academic procrastination was completed by 560 fourth- to sixth-grade students from Shanxi Province. Data were analysed through structural equation modelling technique by using Smart PLS 4.0 software. The results indicated that there was a negative relationship between perceived parental involvement and academic procrastination among Chinese primary school students. Further analyses confirmed the mediating role of negative academic emotions in the relationship between perceived parental involvement and academic procrastination. The findings of this study highlight the crucial role of both perceived parental involvement and academic emotions in shaping students' procrastination behaviours, underscoring the importance of supportive parental involvement and emotional well-being for reducing academic procrastination and promoting more effective learning behaviors among primary school students.

Keywords: Academic Procrastination, Mediating Effect, Negative Academic Emotions, Perceived Parental Involvement, PLS-SEM

Introduction

Academic procrastination refers to the irrational delay in the completion of academic tasks (Guo et al., 2023; Rabin et al., 2011). Many scholars have identified academic procrastination as a pervasive and growing problem among students (Bakar & Khan, 2016; Hassan & Sulaiman, 2019; Hayat et al., 2020; Steel, 2007). It not only affects students' academic performance, but also exerts various negative effects on their physical and mental health (Ahmed et al., 2023; Hassan & Sulaiman, 2019). As a result, this issue has attracted increasing attention from researchers.

While academic procrastination among college students has been extensively researched over the past few decades, research on younger populations remains limited. In particular, few studies have specifically examined procrastination among primary school students, leaving this group relatively understudied (Fan & Zakiah, 2024; Gonzalez-Brignardello et al., 2023). Due to their relatively underdeveloped self-regulatory abilities, primary school students may be more prone to procrastination than older students, and this behavior has been found to be both prevalent and common within this population (Li et al., 2024). Furthermore, this developmental stage is critical for establishing effective study habits that support long-term academic achievement and personal growth. If not addressed early, a temporary tendency to procrastinate may develop into a persistent behavioral trait. Therefore, primary school students represent a group that particularly deserves attention (Li et al., 2021; Wen, 2023). Given the prevalence of academic procrastination among primary school students and its potential long-term consequences, there is an urgent need to develop targeted intervention programs to address academic procrastination in this population. To support such efforts, it is essential to identify the underlying factors that contribute to or inhibit procrastination among primary school students.

Literature Review

Perceived Parental Involvement and Academic Procrastination

According to Bronfenbrenner's Ecological Systems Theory, a child's development is shaped by multiple nested environmental systems, with the family—part of the microsystem—having a direct influence on the child's growth (Tudge & Rosa, 2020). Supporting this view, findings from quantitative genetics indicate that approximately 60% of individual differences can be attributed to environmental factors (Wang et al., 2014). This implies that although innate genetic traits do play a role in shaping behavior and personality, environmental influences are major source of individual behavior differences.

For primary school students, parents serve as the main source of interaction and exert a significant influence on their behavior, attitudes, learning habits, and motivation, which are all closely linked to procrastination behavior (Zhao et al., 2021). Therefore, examining parental involvement as an environmental factor influencing academic procrastination is both important and worthwhile, as it can deepen our understanding of the behavioral mechanisms underlying procrastination in this population. This, in turn, provides an input for developing targeted and effective interventions.

Parental involvement, in its broadest sense, refers to parents' participation and engagement in their children's educational processes, with the aim of promoting their academic achievement and social well-being. It is generally categorized into involvement in home-based education and school-based education (Fishel & Ramirez, 2005; Hill & Taylor, 2004; Thomas et al., 2019; Zong et al., 2017). In this study, parental involvement focuses specifically on parents' engagement in home-based education.

Perceived parental involvement refers to the extent to which students perceive their parents are involved in their educational experience. This perception has a direct influence on students' learning attitudes, academic emotions, and behavior. For example, previous studies have emphasized that children who perceive high levels of parental involvement tend to exhibit greater motivation, higher academic engagement, and better academic performance (Ciping et al., 2015; Liu et al., 2021).

Parental factors play an important role in influencing students' academic procrastination. Some studies have shown that parenting styles have a significant impact on students' academic procrastination. Specifically, negative parenting styles (e.g., punitive and harsh) are associated with higher levels of academic procrastination and stress. Conversely, positive parenting styles (e.g., warm and caring) were associated with lower rates of procrastination (Chen et al., 2022; Khalid et al., 2019; Li et al., 2023; Mahasneh et al., 2016). It has also been shown that parental engagement has an impact on a child's academic procrastination. When parents are actively involved in their children's academic lives, children tend to exhibit lower level of academic procrastination (Milgram & Toubiana, 1999). Another study showed that parental trust and support were negatively associated with academic procrastination. High levels of parental support can help children build self-confidence and thus reduce academic procrastination by enhancing students' self-concept (Zhao et al., 2022).

However, the existing empirical evidences on relationship between parental involvement and academic procrastination appear to be inconsistent. While some studies have emphasized the benefits of encouragement and positive support such as fostering a supportive learning environment and promoting self-regulation learning (Jang & Park, 2023; Milgram & Toubiana, 1999), others argue that parental involvement may have some unintended adverse effects. To illustrate, Xu (2023) found that students who perceive high level of parental support demonstrated greater homework engagement, less procrastination, and improved academic outcomes. Conversely, Wang and Pomerantz (2009) reported that when parental involvement is perceived as controlling or overly critical, it may lead to avoidance behaviors and increased levels of procrastination. These inconsistent perspectives and research findings indicate a need for further investigation into the effect of parental involvement on academic procrastination, especially among Chinese primary students.

The Mediating Role of Negative Academic Emotions

Academic emotions refers to the feelings that are directly related to academic learning, classroom instruction and academic performance (Pekrun et al., 2010). These emotions are generally categorized into two types: positive academic emotions (e.g., enjoyment, hope, pride) and negative academic emotions (e.g., anxiety, boredom, frustration). Both types of emotions play a crucial role in shaping students' learning experiences and academic outcomes. Positive academic emotions are typically associated with increased motivation and

improved academic performance, while negative academic emotions have been linked to diminished concentration, reduced effort, and poorer learning outcomes (Tan et al., 2021). Given their potential to hinder academic functioning, this study focuses only on negative academic emotions.

Pekrun et al. (2002) define negative academic emotions as negative affective responses that arise in academic settings, including learning activities, classroom interactions, and performance evaluations. These emotions, such as anxiety, anger, frustration, boredom, and shame, are typically unpleasant and are directly linked to academic situations. Research has shown that such emotions can undermine students' motivation, engagement, and cognitive functioning, ultimately hindering their academic performance (Lei & Chiu, 2020; Lei et al., 2020; Valiente et al., 2012).

Based on arousal levels, negative academic emotions can be further classified into Negative High-Arousal (NHA) and Negative Low-Arousal (NLA) emotions. NHA emotions are typically characterized by intense physiological and psychological responses, which can impair students' attention and task performance. Common examples include anger and anxiety. In contrast, NLA emotions—such as boredom and hopelessness—are associated with low energy and often linked to withdrawal and disengagement from learning activities (Lei & Chiu, 2020; Pekrun et al., 2002; Valiente et al., 2012).

Accordingly, negative academic emotions have been identified as key predictors of academic procrastination (Rahimi & Vallerand, 2021). Among the many negative emotions, researchers have found that anxiety and fear of failure have been found to be positively associated with academic procrastination (Chen et al., 2024; Gadosey et al., 2024). Specifically, a positive correlation has been found between academic anxiety and procrastination; the higher the level of anxiety, the more likely students are to delay academic tasks. According to the Assessment-Anxiety-Avoidance (AAA) model, higher levels of anxiety about assignments and exams are linked to greater procrastination (Milgram & Toubiana, 1999). Because anxious students are more likely to delay tasks due to fear of failure or negative evaluation (Mega Puspita & Hazim, 2023). Moreover, previous studies have found a significant positive correlation between fear of failure and academic procrastination, identifying it as one of the key predictors of academic procrastination. (Abdi Zarrin et al., 2020; Parlade & Karayigit, 2022).

On the other hand, according to the Control-Value Theory, negative academic emotions—such as anxiety, frustration, and boredom— arise when students perceive low control over and low value in academic tasks (Pekrun & Perry, 2014). Parental involvement plays an important role in shaping these perceptions. Some studies have found that emotional support provided by parents during involvement in their children's homework and learning activities can help alleviate negative academic emotions, which is crucial for academic success. Specifically, parental encouragement and support during the involvement process have been found to enhance students' intrinsic motivation and time management skills, thereby reducing the likelihood of experiencing negative academic emotions. By fostering a greater sense of control over academic tasks, parental involvement can help relieve academic pressure and promote more positive emotional experience in learning (Zhang, 2024).

Building on the theoretical and empirical evidence presented above regarding the relationship between parental involvement and negative academic emotions, as well as the link between negative academic emotions and academic procrastination, it is reasonable to infer that perceived parental involvement may reduce academic procrastination by alleviating negative academic emotions. In other words, negative academic emotions may function as a mediating variable in the relationship between perceived parental involvement and academic procrastination among primary school students. However, this potential mediating role has received limited empirical attention in prior research.

To address this gap, the present study aims to empirically examine the relationships among perceived parental involvement, negative academic emotions, and academic procrastination among primary school students in China. Specifically, it investigates whether negative academic emotions mediate the relationship between perceived parental involvement and academic procrastination.

This investigation makes a valuable contribution to the existing literature by uncovering the psychological mechanisms that underlie the relationship between parental involvement and academic procrastination—an area that remains insufficiently explored. While previous studies have investigated various mediating mechanisms between parental involvement and student outcomes (Chen et al., 2024; Chen & Mok, 2023; Núñez et al., 2023; Xin & Yu, 2024; Yap & Baharudin, 2015), few have specifically examined the mediating role of academic emotions in the relationship between parental involvement and academic procrastination. By exploring the mediating role of negative academic emotions, the present study goes beyond surface-level associations and offers deeper theoretical insights into the emotional pathways through which parental involvement influences students' procrastination behaviors.

In addition to its theoretical significance, this study also offers practical implications by providing targeted insights for parents and educators. A better understanding of these emotional mechanisms can inform more effective strategies for fostering supportive parental involvement and reducing the likelihood of academic procrastination among primary school students.

Based on the discussions above, the following testable hypotheses are proposed:
Hypothesis 1: Perceived parental involvement has a negative effect on academic procrastination.
Hypothesis 2: Perceived parental involvement has a negative effect on negative academic emotions.
Hypothesis 3: Negative academic emotions have a positive effect on academic procrastination.
Hypothesis 4: There is a mediating effect of negative academic emotions on the relationship between perceived parental involvement and academic procrastination.

Methods

Participants and Procedures

The target population of this study consisted of fourth to sixth-grade primary school students in Shanxi Province, China, mainly from three representative public primary schools. A multistage sampling method was adopted, combining stratified sampling and cluster

sampling. First, Shanxi Province was divided into three regions—northern, central, and southern—based on geographic location. Then, one public primary school was randomly selected from each region. Within each selected school, one class was randomly chosen from each of Grades 4 to 6 for the survey. As a result, a total of 560 upper-grade primary school students participated in the questionnaire. Of these, 254 (45.4%) were boys and 306 (54.6%) were girls. In terms of grade distribution, there were 189 students (33.8%) in grade 4, 214 (38.3%) in grade 5 and 157 (28%) in grade 6.

Before data collection, informed consent was obtained from all participating students and their legal guardians. The consent forms were distributed by the class teachers and clearly stated the purpose of the study, assuring that all responses would remain strictly confidential and anonymous. The forms also emphasized that participation was entirely voluntary and that students could withdraw from the survey at any point if they felt uncomfortable. Only those students whose guardians signed the consent forms were allowed to proceed with the questionnaire.

After obtaining permission from both the schools and parents, the first author, with the assistance of the class teachers, organized the survey in classrooms. A self-administered paper-and-pencil questionnaire was distributed to the students, who completed it under the guidance of the researcher. To ensure data quality, students answered the questionnaire independently in a quiet and standardized environment. The entire process took approximately 15 minutes, after which the questionnaires were collected by the research team.

This study strictly followed the ethical principles of the Declaration of Helsinki (1964) and its later amendments, as well as comparable ethical standards, to ensure that all procedures complied with ethical guidelines.

In addition, based on the assumptions of an effect size (f^2) of 0.15, a significance level of 0.05, a statistical power of 0.95, and two predictors. The power analysis conducted through G*Power software indicated that a minimum sample size of 107 was required to detect meaningful effects (Faul et al., 2009). Therefore, the sample size of 560 was more than sufficient to ensure adequate statistical power for the study.

Measure Instruments

All measurement scales used in this study were adopted from previously validated instruments that had been developed and published in reputable academic journals. Minor modifications were made to the original items to ensure their suitability for the context of this study. The content validity and relevance of the adapted instruments were confirmed through expert review by two specialists in educational psychology. Feedback concerning ambiguous terms and grammatical issues was promptly addressed.

The instrument was also pretested with five primary school students from Shanxi Province, China, who reported that the instructions and items were clear and easy to understand. Subsequently, a pilot test was conducted with 30 primary school students. The results further confirmed that the instrument was well-designed, relevant, accurate, unambiguous, and well comprehended by the respondents. In the pilot study, all scales demonstrated good internal

consistency reliability. The Cronbach's alpha coefficients were 0.932 for perceived parental involvement, 0.914 for academic procrastination, and 0.947 for negative academic emotions, indicating high reliability of the instruments during the preliminary testing phase.

Chinese Primary School Students' Academic Procrastination Scale.

Academic procrastination in this study was measured by items adopted from Academic Procrastination Scale developed by Li Yuhua (2021). This scale consists of 24 items, which measure five dimensions: Procrastination on School-Day Assignments (PSDA), Procrastination on Holiday Assignments (PHA), Procrastination on Revision and Exam Preparation (PREP), Procrastination in Self-Directed Learning (PSDL), and Beliefs about Academic Procrastination (BAP). The items are rated using a 5-point Likert scale, where higher scores indicate higher levels of procrastination.

Perceived Parental Involvement Questionnaire.

In this study, the construct of parental involvement was measured by the "Parental Involvement Scale," developed by Song Bing (2010) and adapted by Zhu Qing (2020). This scale comprises 21 items which assess parental involvement across intellectual (PII), emotional (PEI), and behavioural (PBM) dimensions. The items are rated using a 5-point Likert scale, where higher scores indicate higher levels of involvement.

Chinese Primary School Students' Academic Emotion Questionnaire.

The third instrument used in this study is the "Academic Emotions Scale for Primary School Students," designed to measure academic emotions among upper-grade primary school students. This scale, developed by Wang Yan (2020), contains 34 items divided into two dimensions: positive and negative academic emotions. The negative emotions dimension includes 20 items, which measure eight different elements such as irritability, worry, annoyance, shame, boredom, disappointment, distress, and helplessness. They are classified into two categories: negative high-arousal (NHA), which covers emotions such as anger, anxiety, and shame; and negative low-arousal (NLA), including feelings of hopelessness, boredom, depression, and fatigue (Pekrun et al., 2002). Responses are rated on a 5-point Likert scale, ranging from "strongly disagree (1)" to "strongly agree (2)".

Data Analysis Procedures

This study conducted Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0.9 (Ringle et al., 2022). PLS-SEM offers strong flexibility in handling multivariate data. According to the recommendations of Hair et al. (2022), SmartPLS is particularly suitable when the model includes second-order constructs, as it allows for more effective construction and analysis of complex model structures compared to Covariance-Based SEM (CB-SEM).

Following the two-step approach proposed by Anderson and Gerbing (1988), the measurement model was first assessed to ensure adequate reliability and validity of the constructs. Once the robustness of the measurement model was confirmed, the structural model was subsequently examined to explore the relationships among the variables.

Results

Before conducting the main analyses, the researchers performed a series of data cleaning procedures. First, missing data was examined. Notably, there was no missing value in the

dataset. This result is not unexpected, as the study employed a paper-based questionnaire administered under the direct supervision of the researchers. Any missing response was identified and corrected on-site during data collection, effectively eliminating issues related to missing data. Subsequently, potential outlier was assessed using Mahalanobis Distance, and multivariate normality was evaluated based on Mardia's multivariate skewness and kurtosis through the WebPower online tool (https://webpower.psychstat.org/models/kurtosis/).

To assess potential multicollinearity issues, tolerance values (TOL) and Variance Inflation Factors (VIF) were calculated. Finally, to detect the presence of common method bias, the Harman's single-factor test was conducted using SPSS 24.0 (Hair et al., 2022). The results indicated no significant issues related to outliers, multivariate normality, multicollinearity, or common method bias, thus confirming the suitability of the data for further analysis.

Measurement Model

In this study, convergent validity was assessed using Factor Loadings (FL) Average Variance Extracted (AVE) and Composite Reliability (CR). According to the guidelines proposed by Hair et al. (2022), convergent validity is considered adequate when all FL are equal to or greater than 0.708, the AVE for each construct is equal to or greater than 0.50, and the CR exceeds 0.70. As shown in Table 1, all item loadings in this study were above 0.708, with all AVE values exceeding 0.50 and all CR values greater than 0.70. These results indicate that all first-order latent constructs demonstrated good convergent validity and internal consistency reliability.

Table 1
Measurement Model for the First Order Constructs

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
PII	0.940	0.941	0.949	0.676
PEI	0.896	0.898	0.921	0.659
PBM	0.897	0.901	0.921	0.662
PSDA	0.901	0.923	0.931	0.771
PHA	0.922	0.923	0.938	0.683
PREP	0.905	0.906	0.934	0.779
PSDL	0.897	0.900	0.928	0.763
BAP	0.923	0.925	0.942	0.766
NHA	0.939	0.940	0.950	0.702
NLA	0.967	0.967	0.970	0.732

Note: PII=Perceived Intellectual Involvement; PEI=Perceived Emotional Involvement; PBM=Perceived Behavioral Management; PSDA=Procrastination on School-Day Assignments; PHA=Procrastination on Holiday Assignments; PREP=Procrastination on Revision and Exam Preparation; PSDL=Procrastination in Self-Directed Learning; BAP=Beliefs about Academic Procrastination; NHA= Negative High Arousal; NLA= Negative Low Arousal

In addition, discriminant validity was evaluated using the Heterotrait-Monotrait (HTMT) ratio. Based on the recommendation by Henseler et al. (2015), HTMT values below 0.85 indicate adequate discriminant validity between constructs. As shown in Table 2, all HTMT

values for the first-order constructs were below the 0.85 threshold, confirming that the constructs possessed sufficient discriminant validity.

Table 2
Discriminant Validity (HTMT) in the First Order Constructs

	1	2	3	4	5	6	7	8	9	10
1.PII										
2.PEI	0.711									
3.PBM	0.685	0.708								
4.NHA	0.363	0.354	0.358							
5.NLA	0.319	0.297	0.312	0.513						
6.PSDA	0.256	0.304	0.230	0.323	0.286					
7.PHA	0.283	0.309	0.293	0.281	0.273	0.744				
8.PREP	0.271	0.274	0.240	0.226	0.232	0.728	0.887			
9.PSDL	0.264	0.328	0.251	0.358	0.304	0.634	0.502	0.503		
10.BAP	0.290	0.296	0.283	0.303	0.249	0.719	0.834	0.856	0.518	

Furthermore, as shown in Table 3, the evaluation of the second-order measurement model in this study indicated that all constructs had Average Variance Extracted (AVE) values greater than 0.50, Composite Reliability (CR) values exceeding 0.70, and factor loadings above 0.708—all meeting the recommended statistical thresholds. These results provide strong evidence that the second-order latent constructs—Perceived Parental Involvement, Academic Procrastination, and Negative Academic Emotions—demonstrated good convergent validity.

Table 3
Measurement Model for the Second Order Constructs

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
PPI	0.952	0.953	0.956	0.511
AP	0.962	0.965	0.965	0.542
NAE	0.956	0.957	0.960	0.548

Note: PPI=Perceived Parental Involvement; AP= Academic Procrastination; NAE= Negative Academic Emotions

In addition, as shown in Table 4, all HTMT values for the second-order constructs were below the threshold of 0.85, indicating that the constructs were clearly distinguishable from one another and possessed adequate discriminant validity.

Table 4
Discriminant Validity (HTMT) in the Second Order Constructs

	AP	NAE	PPI
AP			
NAE	0.369		
PPI	0.360	0.425	

Structural Model

According to the recommendations of Becker et al. (2023), this study employed a bootstrapping procedure with 10,000 resamples and reported path coefficients, standard errors, t-values, and p-values in the structural model. In addition, Hahn and Ang (2017) argued that p-values alone are not a sufficient criterion for determining statistical significance in hypothesis testing. They suggested that p-values should be interpreted in conjunction with confidence intervals and effect sizes. Therefore, the present study adopted these combined criteria to test the proposed hypotheses.

As shown in Table 5, Perceived Parental Involvement (PPI) was found to be negatively related to Academic Procrastination (AP) (β = -0.241, $p < 0.01$, CI [-0.325, -0.158]) and to Negative Academic Emotions (NAE) (β = -0.405, $p < 0.01$, CI [-0.468, -0.340]). Thus, H1 and H2 were supported. According to the criteria proposed by Cohen (1988), an f^2 value of 0.02 indicates a weak effect, 0.15 a medium effect, and 0.35 a strong effect. As shown in Table 5, the effect size of Perceived Parental Involvement on Academic Procrastination was small (f^2 = 0.085), and its effect size on Negative Academic Emotions (f^2 = 0.195) was medium.

In addition, the direct effect of Negative Academic Emotions (NAE) (β = 0.248, $p < 0.01$, CI [0.164, 0.330]) on Academic Procrastination (AP) was found to be statistically significant and positive. Thus, H3 was supported. The effect size of Negative Academic Emotions on Academic Procrastination was small (f^2 = 0.062).

Table 5
Hypothesis Testing Direct Effects

Hypo-thesis	Path	Original Sample (O)	Standard deviation (STDEV)	t-values	p-values	BCI LL	BCI UL	f^2/v^2	Result
H1	PPI → AP	-0.241	0.043	5.645	0.000	-0.325	-0.158	0.058[f]	Accepted
H2	PPI → NAE	-0.405	0.033	12.433	0.000	-0.468	-0.340	0.195[f]	Accepted
H3	NAE → AP	0.248	0.043	5.814	0.000	0.164	0.330	0.062[f]	Accepted
H4	PPI → NAE → AP	-0.100	0.019	5.257	0.000	-0.139	-0.064	0.010[v]	Accepted

Note: We use 95% confidence interval with a bootstrapping of 10,000

The present study employed the bootstrapping method to assess the mediating effect of Negative Academic Emotions. This approach was recommended by Preacher and Hayes (2004, 2008). As shown in Table 5, based on 10,000 bootstrap samples, the 95% bias-corrected confidence interval (lower bound = -0.139, upper bound = -0.064) for the indirect effect of perceived parental involvement on academic procrastination through negative

academic emotions does not include zero. This suggests that Negative Academic Emotions play a significant mediating role in the relationship between perceived parental involvement and academic procrastination. Therefore, H4 is supported. To further examine the magnitude of this mediating effect, this study followed the guidelines proposed by Lachowicz et al. (2018) and used the MedPower software developed by Kenny (2021) to calculate the v^2 value. According to Kenny (2021), v^2 values of 0.01, 0.09, and 0.25 represent small, medium, and large effect sizes, respectively. In this study, the v^2 value for the indirect effect of perceived parental involvement on academic procrastination through negative academic emotions was 0.010, indicating a small effect size.

In addition, the predictive power of the model was evaluated using the PLS-Predict. If all or most item-level prediction error differences (PLS-LM) are negative, it indicates strong predictive power; if all or most differences are positive, it suggests a weak predictive power (Shmueli et al., 2019). As shown in Table 6, the vast majority of errors in the PLS model are lower than in the LM model, which indicates that the model constructed in this study has strong predictive power.

Table 6
PLS-Predict

Item	PLS RMSE	LM RMSE	PLS-LM	Q^2_predict
PSDA	0.307	0.308	-0.001	0.013
PHA	0.844	0.847	-0.003	0.092
PREP	0.954	0.956	-0.002	0.07
PSDL	0.917	0.917	0	0.08
BAP	0.954	0.958	-0.004	0.091
NHA	0.796	0.798	-0.002	0.143
NLA	0.867	0.87	-0.003	0.109
PSDA	0.307	0.308	-0.001	0.013
PHA	0.844	0.847	-0.003	0.092

Discussion

This study demonstrates the impact of perceived parental involvement on academic procrastination among Chinese primary school students and the mediating role of negative academic emotions. First, this study found that perceived parental involvement had a significant negative impact on their academic procrastination. Second, this study found the mediating role of negative academic emotions in the relationship between perceived parental involvement and academic procrastination. These will be discussed in more detail below.

This study first examined the relationship between perceived parental involvement and academic procrastination among elementary school students. As expected, students' perception of parental involvement significantly predicted their level of academic procrastination. Specifically, higher levels of perceived parental involvement were associated with lower levels of procrastination. This finding is consistent with previous research, which has shown that parental involvement can provide academic encouragement, promote time management, and reduce procrastination behavior (Aman et al., 2019; Budiwati et al., 2024; Janta et al., 2019; Won & Yu, 2018; Wu et al., 2024; Xu, 2023). For example, parental supervision and monitoring, when positively received by students, are linked to reduced

procrastination, as they help students stay focused and organized (Xu, 2023). Similarly, when parents help their children understand the value of time management, it can lessen the tendency to delay academic tasks (Won & Yu, 2018). Together, these findings support the central conclusion of this study: perceived parental involvement serves as a significant protective factor against academic procrastination.

However, some studies offer a more nuanced perspective on this relationship. While the findings of the present study suggest that perceived parental involvement can reduce academic procrastination, it is important to note that such involvement should not be excessive.

Excessive parental intervention—particularly when perceived as controlling—can undermine children's autonomy and self-regulatory abilities. For example, Xu (2021) and Zhang et al. (2022) argue that overly involved parenting may weaken children's self-control, diminish their initiative and sense of responsibility, and ultimately increase procrastination. These findings suggest that the benefits of parental involvement depend not only on its presence but also on how it is perceived and enacted. In this regard, the present study contends that while parental involvement can serve as a protective factor, it should be offered in a balanced and supportive manner rather than in an overbearing way.

Second, perceived parental involvement generally has a negative effect on negative academic emotions, that is, parental involvement can reduce negative academic emotions. Among them, perceived cognitive involvement and perceived affective involvement can reduce negative academic emotions in elementary school students. This is because parental cognitive and affective involvement has a positive impact on students' learning attitudes, thereby reducing negative academic emotions (Sharma, 2024; Utami, 2022). But this is not always the case. Research shows that students' negative academic emotions may increase when they feel their parents are overly involved in their learning activities. This is because students can feel ashamed or self-loathing as a result (Li et al., 2022). In the Chinese cultural context, parents pay a lot of attention to their children's academic achievements, and they consider their children's academic success to be their most important achievement. This demanding parenting style may cause stress and internal psychological pressure in children, and may also lead to learning problems such as academic procrastination (Chen et al., 2022). Another study also shows that excessive parental intervention may have a negative impact on children's development. When parents are involved, excessive attention to children's mistakes and high standards, and not allowing children to question any decisions they make, can cause psychological stress and even anxiety in children. In addition, excessive parental protection during the parent participation process can be perceived by children as interference, which conflicts with their need to pursue independence and autonomy (Liu et al., 2021). When primary school students perceive excessive interference from their parents in their studies, they develop negative academic emotions such as resistance or disgust (Li et al., 2023).

Third, negative academic emotions are positively correlated with academic procrastination among elementary school students. Specifically, both negative high-arousal and negative low-arousal academic emotions have a significant impact on academic procrastination. This is consistent with the results of a study conducted by Wang et al. in 2024

(Wang et al., 2024). Negative academic emotions (such as anxiety, boredom, and fear of failure) are considered to be important factors leading to academic procrastination (Xu et al., 2023). Specifically, students with high anxiety levels are more likely to avoid learning tasks, which leads to procrastination (Mega Puspita & Hazim, 2023). Boredom can also weaken students' intrinsic motivation to learn and make them more likely to procrastinate (Sepdila & Magistarina, 2024) . In addition, Lee et al. (2024) point out that students could use academic procrastination as a way to relieve academic anxiety and cope with academic pressure, temporarily avoiding the possibility of failure. However, it is worth noting that in some cases, high anxiety may instead prompt students to engage in learning early to avoid negative consequences (Xu et al., 2023). However, this drive still has a negative impact on students' mental health. It can be seen that academic procrastination is often associated with negative academic emotions, which are an important predictor of academic procrastination (Djamahar et al., 2020; Rahimi et al., 2023).

In addition, this study examined the mediating role of negative academic emotions in this relationship. The study found that negative academic emotions significantly mediate the relationship between perceived parental involvement and academic procrastination. Mujidin et al. (2023) had similar results to those of this study. The study found that there is no significant direct relationship between parenting styles and academic procrastination. However, their findings suggest that parenting styles may influence procrastination through indirect pathways, such as the mediation of academic emotions and other contributing factors. According to the control-value theory, academic emotions are determined by the student's sense of control over the task and their value assessment of the task (Pekrun & Stephens, 2009). The emotions that students experience during the learning process are closely related to their sense of control and value of learning activities. Positive support from parents can enhance students' academic self-efficacy and sense of value in learning, thereby reducing academic procrastination caused by a sense of helplessness (Dong et al., 2020; Niknam et al., 2023). At the same time, supportive behaviours in parental involvement can alleviate students' negative academic emotions, enhance confidence in academic tasks, and thus reduce the tendency to procrastinate (Zhao et al., 2022; Zheng et al., 2023). In short, the findings of this study demonstrated that parental involvement can reduce academic procrastination through alleviating negative academic emotions.

Conclusion

This study revealed the impact of perceived parental involvement on academic procrastination among elementary school students and the mediating role of negative academic emotions. Such findings not only clarify whether perceived parental involvement influences academic procrastination, but also highlight negative academic emotions as a key psychological mechanism underlying this relationship. They provide valuable insights for parents on how to reduce academic procrastination among elementary school students. Specifically, the results indicate that perceived parental involvement has a significant impact on academic procrastination, primarily through its influence on students' negative academic emotions. This underscores the importance of appropriate parental involvement—such as offering sufficient cognitive and emotional support—to help alleviate negative emotions related to learning, thereby reducing the likelihood of procrastination.

Research Limitations and Future Study

Despite its contribution, this study is not without limitations. First, the sample mainly consisted of elementary school students in Shanxi Province, China, and the sample size was relatively limited, which may limit the generalizability of the findings to students from other cultural backgrounds. Future research should consider expanding both the geographic scope and sample size to enhance the generalizability of the findings.

Second, the data in this study were primarily collected through a self-reported questionnaire survey, which may introduce personal subjectivity, thereby influencing the reliability of the research findings. Future studies could consider using multiple data collection methods to enhance the objectivity of the results. In addition, the cross-sectional design of this study limits the ability to establish causal relationships between variables. Future research could adopt a longitudinal design to better examine the causal pathways and temporal dynamics among the variables.

Data Availability Statement

The raw data supporting the conclusions of this article will be made available by the authors without any unreasonable restrictions.

Ethics Statement

This study involving human participants was approved by their school, legal guardians and themselves. Written informed consent for participation was provided by them.

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