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The Influence of Class Atmosphere and Psychological Quality on Academic Procrastination and Its Intervention Research

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ABSTRACT

Academic procrastination is a common issue among students with multifaceted negative consequences. It directly impairs students' academic performance and mental health and indirectly undermines teacher-student and parent-child relationships. To address this problem, the present study surveyed 162 students from a primary school in Guangzhou by administering the Student-Perceived Classroom Interpersonal Harmony Questionnaire, the General Procrastination Scale, and the Primary School Student Psychological Quality Scale. The study focused on the current state of academic procrastination and examined the direct and indirect relationships among classroom climate, psychological quality, and academic procrastination. The results indicated that: (1) The levels of classroom climate and psychological quality were relatively high, whereas degree of academic procrastination was relatively low. (2) Classroom climate significantly and negatively predicted academic procrastination. (3) Psychological quality significantly and negatively predicted academic procrastination. (4) Classroom climate significantly and positively predicted psychological quality, and psychological quality played a partial mediating role between classroom climate and academic procrastination. In conclusion, both classroom climate and psychological quality are significant negative predictors of academic procrastination in primary school students. A positive classroom climate can not only directly reduce students' academic procrastination but also foster their good psychological quality, thereby generating long-term positive effects. This research has important practical implications for both school and family education, suggesting that primary school teachers should pay more attention to classroom climate and students' psychological quality during instruction, and parents should also be more attentive to their children's psychological quality to indirectly reduce academic procrastination.

KEYWORDS: classroom climate; academic procrastination; psychological quality; mediating effect

1. INTRODUCTION

In modern society, as expectations for educational quality continue to rise, primary education—the foundation of basic education—has received unprecedented attention. However, the phenomenon of academic procrastination acts as a hidden obstacle, hindering students from effectively accumulating knowledge and developing their abilities. Academic procrastination is defined as the voluntary delay in initiating or completing planned academic tasks despite anticipating negative consequences (Li, Huo, Wang, Zhang, & Feng, 2021). The

current tracking system associated with China's senior high school entrance examination has exacerbated students'academic pressure and intensified parental anxiety.This competitive pressure has now permeated the primary school stage. Primary school is a critical period for the formation of learning habits and behavioral patterns. As a prevalent learning issue at this stage, academic procrastination not only affects students' immediate academic achievement but also exerts a negative influence on their long-term learning attitudes and psychological development (Zhang, 2013; Zhu, 2019).

Previous research has primarily focused on the causes of academic procrastination in middle and high school students and undergraduates. Due to the unique psychological characteristics and developmental environment of primary school children, relevant studies on this population are relatively scarce (Yang, 2012). As educational competition intensifies and its pressures extend downward into foundational education, the issue of academic procrastination among primary school students has garnered increasing concern, creating an urgent need to clarify its influencing factors and underlying mechanisms.

Classroom climate is a core environmental factor in students' school life, is defined as students' integrated experiences of teacher-student relationships, peer relationships, and class organizational practices over a extended period (Guo, 2004). Existing research indicates that a positive classroom climate can enhance student engagement and alleviate negative emotions, whereas a negative climate may trigger avoidance behaviors (Pan, Zhao, Yao, & Wang, 2012; Wang, 2019). For instance, in a classroom environment characterized by positive teacher-student interactions and peer support, students are more likely to maintain their learning motivation and reduce procrastination (Shen, 2012). However, the influence of classroom climate on academic procrastination is not necessarily direct and may be transmitted through individual psychological variables.

Past studies have shown that within the primary school context, students with better teacher-student relationships exhibit lower levels of academic procrastination, while those with tense teacher-student relationships show higher levels (Li, 2018; Wang, 2012). Higher teacher expectations are associated with a stronger sense of learning responsibility in students, leading to less procrastination (Gregory & Theresa, 2007). Effective teacher-student interaction helps reduce academic procrastination (Pychyl, Coplan, & Reid, 2002), while strained relationships can make individuals feel highly stressed, leading to more emotional problems or negative academic behaviors, such as procrastination (Runions et al., 2014; Jellesma, de Boo, & Prins, 2015). Furthermore, poor teacher-student relationships can also make individuals more vulnerable to peer victimization (Runions et al., 2015), which is detrimental to their learning. Conversely, positive peer relationships within the classroom climate are conducive to reducing student procrastination (Shen, 2012; Wen, 2016), as friendships facilitate discussions about learning-related issues and promote positive interactions. In contrast, individuals who are rejected or unaccepted by peers, and thus have tense peer relationships, generally exhibit higher levels of academic procrastination (Coie, Dodge, & Kupersmidt, 1990). The relationship between classroom climate and academic procrastination is therefore close. A positive classroom climate can help reduce student procrastination through various means, while a negative one may exacerbate it.

Thus, we propose Hypothesis 1 (H1): Classroom climate significantly and negatively predicts academic procrastination in students.

Psychological quality, as an individual's internal psychological attribute, encompasses three dimensions: cognitive quality, personality quality, and adaptability (Zhang, 2008). It serves as a crucial psychological foundation for students to cope with academic challenges. Students with high psychological quality possess stronger emotion regulation and resilience, enabling them to effectively avoid procrastination triggered by stress or difficulties (Su, Zhang, & Shao, 2015). In contrast, students with low psychological quality are prone to falling into negative moods and avoiding academic tasks (Li, 2016). Moreover, classroom climate is closely linked to psychological quality: a friendly and supportive classroom environment can accumulate positive emotions and enhance self-identity in students, thereby boosting their psychological quality; the opposite environment can weaken psychological resilience (Hu & Wang, 2016; Nie, Teng, & Zhang, 2016). Su, Zhang, and Shao (2015) found that students (aged 8-12) with high psychological quality are more likely to adopt proactive problem-solving strategies and seek support when facing learning challenges, whereas those with low psychological quality tend to use avoidance and other negative coping methods. Compared to their high-quality peers, students with low psychological quality are more likely to avoid homework and exhibit academic procrastination.

Psychological quality has a direct impact on academic procrastination. Higher self-esteem can increase a student's confidence in their own abilities, making them more willing to proactively engage in learning and reduce procrastination. Individuals with greater psychological resilience can maintain an optimistic attitude and persist in their efforts to complete tasks when faced with academic pressure or difficulties, further lowering their tendency to procrastinate. Students with insufficient resilience, however, easily feel helpless and anxious when confronted with academic challenges and are more inclined to put things off.

Classroom climate influences students' psychological states, which in turn play a role in academic procrastination, and psychological quality further impacts this behavior. A good classroom climate can enhance students' self-esteem and resilience, thereby reducing academic procrastination. A poor classroom climate may undermine students' psychological quality, leading to increased procrastination. For students, whose psychological quality is significantly shaped by their classroom climate, and given the important influence of psychological quality on academic procrastination, we hypothesize that classroom climate may affect academic procrastination through the mediating role of psychological quality.

Therefore, we propose Hypothesis 2 (H2): Psychological quality significantly and negatively predicts academic procrastination in students.

We also propose Hypothesis 3 (H3): Classroom climate significantly and positively predicts psychological quality, and psychological quality mediates the relationship between classroom climate and academic procrastination.

In summary, this study aims to explore the relationship between classroom climate and academic procrastination in primary school students and to introduce psychological quality as a mediating variable (see Figure 1) to elucidate the potential causes of this behavior.

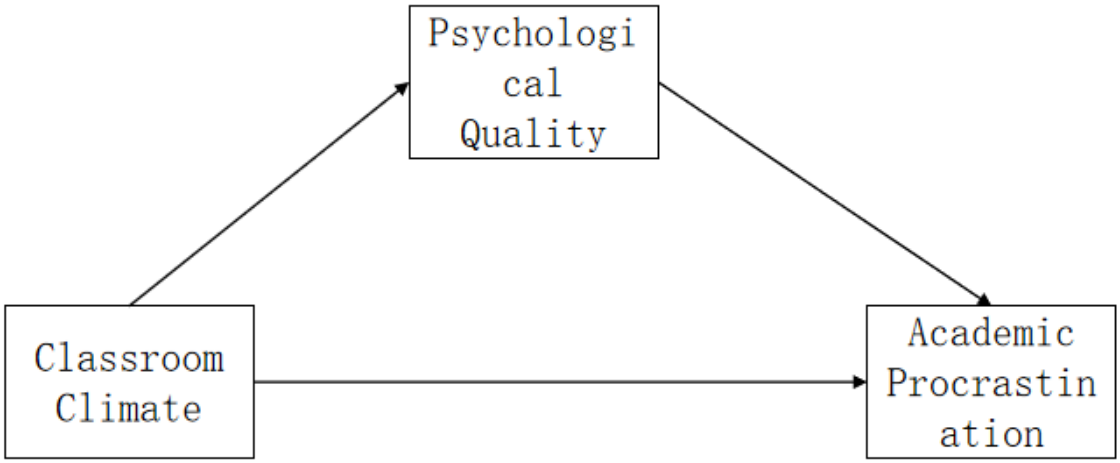

Figure 1 The hypothesized model

2. METHOD

2.1 Participants

A convenience sample of students from a primary school in Haizhu District, Guangzhou, Guangdong Province, was selected for this study. After obtaining informed consent from the participants, their guardians, and their teachers, 201 questionnaires were distributed. Following the exclusion of incomplete, patterned, random, or uniformly answered questionnaires, 162 valid questionnaires were retained, yielding a response rate of 80.26%. The demographic details are presented in Table 1.

Table 1 Demographic characteristics of the participants (N = 162)

	Demographic variables	Frequency	Percentage (%)
Gender	Male	82	50.6
	Female	80	49.4
Grade	Grade2	41	25.3
	Grade3	38	23.5
	Grade4	40	24.7
	Grade5	43	26.5
Residence	Urban	157	96.9
	Rural	5	3.1
Class Officer	Yes	84	51.9
	No	78	48.1
Only Child	Yes	37	22.8
	No	125	77.2

2.2 Measures

2.2.1 Classroom Climate

The Student-Perceived Classroom Interpersonal Harmony Questionnaire, developed by Chen and Li (2009), was used. The questionnaire contains 26 items across three subscales: peer relationships (e.g., "Students don't talk to each other"), teacher-student relationships (e.g., "The teacher is very gentle with the students"), and class management (e.g., "All class affairs and decisions are made solely by the teacher"). It uses a 5-point Likert scale,

with higher scores indicating a better classroom climate. In this study, the Cronbach's alpha coefficients for the total scale and the three subscales were 0.902, 0.783, 0.853, and 0.695, respectively.

2.2.2 Psychological Quality

The Primary School Student Psychological Quality Scale, designed by Zhang and Su (2015), was employed to assess students' psychological quality. The scale uses a 5-point rating system. The total score is the sum of the scores from three dimensions: cognition, personality, and adaptability. A higher total score indicates better psychological quality. The scale demonstrated high reliability, with internal consistency coefficients (Cronbach's alpha) of 0.870 for the total scale and 0.739, 0.786, and 0.694 for the three subscales, respectively.

2.2.3 Academic Procrastination

The General Procrastination Scale (Student Version), developed by Lay (1986) and validated for Chinese primary school students by Li (2013), was used to measure academic procrastination. The scale contains 20 items assessing procrastinatory behaviors on a 5-point scale ranging from "Never" to "Always." Procrastination severity is categorized into four levels: 20 points (no procrastination), 20-40 points (mild procrastination), 40-60 points (moderate procrastination), and 60-80 points (severe procrastination). The scale showed high stability, with a Cronbach's alpha coefficient of 0.827.

2.3 Data Analysis

Data were analyzed using SPSS 22.0. The analytical methods included descriptive statistics, independent samples t-tests, one-way ANOVA, post-hoc comparisons, correlation analysis, and a bias-corrected percentile bootstrap method to test the mediating effect of psychological quality.

3. RESULTS

3.1 Common Method Bias

Harman's single-factor test was conducted to examine common method bias. The results showed that the first factor explained 19.10% of the variance, which is below the critical threshold of 40%, indicating no significant common method bias in the data.

3.2 Demographic Differences in Key Variables

Differences in classroom climate, psychological quality, and academic procrastination were analyzed across four demographic variables: grade, gender, residence, and only-child status (see Table 2).

Classroom climate did not differ significantly by gender, residence, or only-child status (p >0 .05), but it did differ significantly by class officer status (p <0 .01). Student officers reported a significantly higher level of classroom climate than non-officers.

Psychological quality also showed no significant differences by gender, residence, or only-child status, but was significantly higher among student officers (p <0 .01).

Academic procrastination showed no significant differences by gender, residence, or only-child status, but was significantly higher among non-officers (p <0 .01).

Table 2 Differences in key variables by demographic characteristics (N=162, M±SD)

Variable	Category	n	Classroom Climate	Psychological Quality	Academic Procrastination
Gender	Male	82	3.65±0.08	3.79±0.06	1.98±0.04
	Female	80	3.76±0.09	3.91±0.07	1.89±0.05
	t		-0.91	-1.38	1.42
Residence	Urban	157	3.70±0.75	3.85±0.57	1.93±0.43
	Rural	5	3.89±0.84	3.72±0.87	1.99±0.48
	t		-0.56	0.50	-0.26
Class Officer	Yes	84	3.89±0.69	4.00±0.51	1.84±0.34
	No	78	3.51±0.78	3.69±0.61	2.03±0.50
	t		3.23**	3.54**	-2.86***
Only Child	Yes	37	3.66±0.85	3.88±0.60	1.83±0.38
	No	125	3.72±0.73	3.83±0.58	1.97±0.44
	t		-0.41	0.29	-1.75

Note：$p < 0.05$; $p < 0.01$; $p < 0.001$

3.3 Correlation Analysis

Correlation analyses were conducted among classroom climate, psychological quality, and academic procrastination (see Table 3).Psychological quality was significantly positively correlated with classroom climate (r =0.753, $p < 0.01$).Academic procrastination was significantly negatively correlated with classroom climate (r = -0.417, $p < 0.01$).Academic procrastination was also significantly negatively correlated with psychological quality (r = -0.507, $p < 0.01$), indicating that higher psychological quality is associated with less procrastination.

Table 3 Correlations among classroom climate, psychological quality, and academic procrastination (N = 162)

	M	SD	classroom climate	psychological quality	academic procrastination
classroom climate	3.71	0.75	1		
psychological quality	3.85	0.58	0.75**	1	
academic procrastination	1.94	0.43	-.42**	-.51**	1

Note：$p < 0.05$; $p < 0.01$; $p < 0.001$

3.4 Mediation Analysis

Given the significant correlations among the three variables, mediation analysis was conducted based on our hypotheses, with academic procrastination as the dependent variable, classroom climate as the independent variable, and psychological quality as the mediator, using a three-step regression approach (see Table 4).

After controlling for demographic variables, Model 1 showed that classroom climate had a significant negative effect on academic procrastination (β= -0.512, $p < 0.001$). Model 2 showed that classroom climate had a significant positive effect on psychological quality (β= 0.774, $p < 0.001$). In Model 3, when both classroom

climate and psychological quality were entered as predictors, the mediator (psychological quality) had a significant negative effect on academic procrastination (β= -0.356, $p < 0.01$). This indicates that the relationship between classroom climate and academic procrastination can be partially explained by psychological quality. Even after controlling for the effect of psychological quality, the direct effect of classroom climate on academic procrastination remained significant (β= -0.236, $p < 0.05$). These findings suggest that psychological quality plays a partial mediating role.

A bootstrap analysis was then conducted to further validate these results (see Table 5). The 95% confidence interval for the indirect effect did not include zero [-0.414, -0.139], confirming a significant mediating effect. The indirect effect value was -0.276, accounting for 53.95% of the total effect. This confirms that psychological quality partially mediates the relationship between classroom climate and academic procrastination. The final mediation model is depicted in Figure 2.

Table 4 Regression analysis testing the mediating effect of psychological quality *(N* = 162)

Variable	academic procrastination Y		Psychological Quality M		academic procrastination Y	
	Model 1		Model 2		Model 3	
	β	t	β	t	β	t
Gender	-0.075	-1.092	0.053	1.031	-0.056	-0.841
Grade	-0.277	-3.610	0.093	1.608	-0.244	-3.262
Residence	0.041	0.588	-0.076	-1.451	0.014	0.205
Class Officer	0.116	1.642	-0.086	-1.619	0.085	1.239
Only Child	0.133	1.921	-0.052	-0.986	0.115	1.708
classroom climate X	-0.512***	-6.538	0.774***	13.153	-2.36*	-2.142
Psychological Quality M					-0.356**	-3.455
F	33.751***		210.123***		33.751***	
R^2	0.174		0.568		0.174	

Note：$p < 0.05$; $p < 0.01$; $p < 0.001$

Table 5 Bootstrap analysis of the mediating effect (N = 162)

Effect Type	Effect	Boot SE	Bootstrap 95%CI		Proportion of Total Effect(%)
			Lower limit	Upper limit	
Total Effect	-0.512	0.045	-0.381	-0.204	
Direct Effect	-0.236	0.063	2.721	4.278	46.05%
Indirect Effect	-0.276	0.025	-0.414	-0.139	53.95%

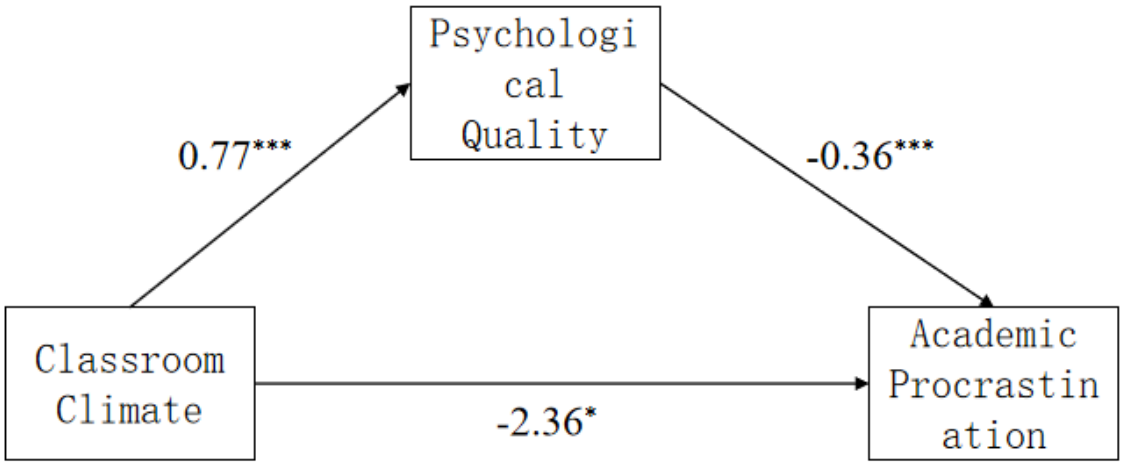

Figure 2 The path diagram of the mediation model

4. INTERVENTION FOR ACADEMIC PROCRASTINATION

This study confirms that a positive classroom climate and good psychological quality are key protective factors against academic procrastination in primary school students, with psychological quality playing a significant partial mediating role between the two. Psychological quality, as an individual variable, serves as a conduit through which the environmental variable of classroom climate influences student outcomes (Nie, Teng, & Zhang, 2016). However, academic procrastination is not an isolated individual behavior but rather the result of an interaction between an individual's psychological traits and their social-ecological system. Therefore, effective intervention must move beyond a single dimension and establish an integrated support network involving families, schools, government, communities, and professional medical institutions.

The family is the first line of defense in intervention. Parents should shift their focus from solely monitoring academic performance to prioritizing their child's psychological well-being. This study suggests that parents need to actively create a warm and supportive family atmosphere. Through high-quality parent-child communication, they can help their children establish clear learning goals and time management awareness. When signs of procrastination emerge, parents should avoid harsh criticism and instead work with their child to analyze the underlying causes, offering emotional support and concrete strategic guidance. This approach fosters self-discipline and resilience within the family, laying a solid foundation for the development of psychological quality.

The school is the core arena for intervention, and the cultivation of a positive classroom climate is paramount. Previous research also indicates that a good classroom climate helps cultivate students' cooperative skills, increases positive peer interactions, and provides beneficial experiences that enhance their psychological quality (Nie, Zhang, & Teng, 2016). Our findings further demonstrate that a positive classroom climate not only directly inhibits academic procrastination but also reduces it more effectively by enhancing students' psychological quality. Students who are accepted by their peers and experience a harmonious and stable classroom climate exhibit healthier psychological functioning, are less prone to negative emotions like anxiety (Gazelle, 2006), and can thus devote more energy to their studies, reducing procrastination. Therefore, school administrators and teachers must prioritize "fostering a positive classroom climate" in their educational and teaching practices. To achieve this, they should:

1、Strengthen teacher-student relationships: Teachers should adhere to principles of respect, trust, and care, establishing a democratic and equal mode of interaction. They should leverage the positive expectancy effect and provide timely, specific positive feedback to enhance students' self-efficacy and sense of learning responsibility.
2、Optimize peer relationships: Teachers should consciously organize cooperative learning and team-building activities to guide students in learning communication, mutual assistance, and tolerance, thereby constructing a safe and supportive peer network where every student feels a sense of belonging and value.
3、Improve classroom management: Implement democratic and transparent classroom management systems that encourage student participation in decision-making regarding class affairs, thereby cultivating their autonomy and rule consciousness in practice.

Government-level resource allocation is indispensable. Educational administrative departments should incorporate student mental health education and the construction of a positive campus culture into school evaluation systems. They should also increase investment in mental health education resources to ensure that every school has a sufficient number of professionally trained mental health teachers. Furthermore, they should provide professional development training for frontline teachers on classroom management and student psychological counseling to institutionally guarantee the effective implementation of school-based interventions.

The community should serve as a powerful complement to home-school collaboration. Communities can integrate resources to offer parenting workshops and seminars for parents, disseminating scientific knowledge on child-rearing and psychological adjustment. Additionally, by leveraging community centers, libraries, and other venues, they can organize extracurricular activities and study groups that are beneficial to physical and mental health, providing students with a positive and supportive growth space outside of home and school, thus fostering a robust social support atmosphere.

Finally, professional medical institutions can provide precise technical support. For students with severe academic procrastination accompanied by significant symptoms of anxiety, depression, or other emotional disorders, schools and families should promptly refer them to specialized mental health facilities. Psychiatrists and clinical psychologists can provide assessment, diagnosis, and individualized psychotherapy to help students address deep-seated emotional distress, fundamentally improving their procrastination behaviors, and offering professional guidance to both schools and families.

In conclusion, addressing academic procrastination cannot rely on efforts at the individual level alone. A systematic support system that integrates the collaborative efforts of families, schools, government, communities, and medical institutions is essential. Among these, schools, as the central environment for student growth, must take the initiative to build a positive classroom climate. By optimizing teacher-student interactions, promoting peer support, and refining classroom management, schools can lay a strong foundation for the development of students' psychological quality. Only through this five-pronged approach can we effectively address the issue of academic procrastination, genuinely enhance students' mental health and autonomous learning capabilities, and safeguard their comprehensive and sustainable development.

5. CONCLUSION

1. Classroom climate significantly and negatively predicts academic procrastination in primary school students.

2. Psychological quality significantly and negatively predicts academic procrastination in primary school students.
3. Classroom climate significantly and positively predicts psychological quality, and psychological quality plays a partial mediating role in the relationship between classroom climate and academic procrastination.

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